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MARKETS FOR SAWMILL AND WOODWORKING MACHINERY IN SOUTH AMERICA

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FOREWORD

The countries of South America present widely varying markets for sawmill and woodworking machinery. Some factors, however, are common to all. Hand labor is generally rather cheap; sawmill and woodworking industries are characterized by many small units requiring comparatively simple machinery, and, wherever any important demand for machinery exists, considerable competition is encountered from European manufacturers.

Several South American countries are richly endowed with forests, but the timber is so inaccessible or so widely scattered in many cases that it can not be exploited commercially except with great difficulty, and much lumber is imported. That condition restricts the market for high-grade sawmill machinery, and the smaller portable mills are fairly numerous. In Argentina there is an exceptional opportunity in connection with the quebracho industry, in which an attempt is being made to use scientific methods and modern machinery.

Prospects for the sale of woodworking machinery are somewhat better. In several of the markets covered by this bulletin the industry is still relatively undeveloped and the demand for machinery correspondingly small, but in others there is a growing tendency to expand and improve existing equipment. In Chile, for example, there appears to be an increasing demand for better equipment along certain lines following an expansion in public and private construction and an improvement in the business situation. In Argentina the increasing demand for furniture and other wood products, especially in Buenos Aires and other large cities, has resulted in a certain improvement in woodworking equipment. There, and also in Brazil, the industry is still in the hands of many small operators of comparatively small capital, however.

This bulletin describes in some detail the sawmill and woodworking industries of the various countries of South America, the type and origin of the machinery now in use, and gives suggestions as to the best methods to secure new business, with the purpose of giving the United States exporter a practical idea of the present situation. It is believed that the bulletin will be of material assistance to American manufacturers in introducing new types of sawmill and woodworking machinery and in increasing sales of lines already established.

This bulletin is one of a series reporting a world survey made by the Industrial Machinery Division of the Bureau of Foreign and Domestic Commerce. That division will be glad to reply to specific inquiries from qualified American exporters on any of the subjects covered in this publication.

WILLIAM L. COOPER, *Director*,
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APRIL, 1930.

MARKETS FOR SAWMILL AND WOODWORKING MACHINERY IN SOUTH AMERICA

ARGENTINA

By Charles H. Ducote, Assistant Trade Commissioner, Buenos Aires

SAWMILL INDUSTRY

One of Argentina's most valuable natural resources is its forests, forest products exported during 1928 having amounted to $24,419,110, constituting about 14 per cent of the total exports. The forests exploited are mainly in the northern part, near the boundaries with Bolivia, Paraguay, and Brazil, the largest forest region being known as the Grand Chaco. Besides the Chaco, Argentina has considerable forested areas in western Patagonia, along the Chilean frontier. In that section beech in several varieties predominates and is known locally as roble (oak). To the south softwoods are frequent but scattered. Cedar and larch occur in patches between the beech forests. There are very few mills in that part of Argentina, and they operate only to satisfy the local demands of the sparsely settled rural communities. Owing to the great distance from the consuming centers—Buenos Aires, Rosario, Santa Fe, etc.—and the consequent heavy transportation charges, the southern forest regions are practically negligible as sources of lumber. The small sawmills located there, therefore, because of their small number, the primitive methods they employ, and their small output of simple products hardly warrant attention as markets for American sawmill machinery.

Many of Argentina's woods, especially those in the northern section, are hard, heavy, dense, and expensive to work. The largest demand for domestic lumber is in timber form for bridges and trestles, dock works, crossing planks, water-tank foundations, railroad crossties, fence posts, etc.

Owing to the existence in northern Argentina of the quebracho-extract industry, requiring logging and sawmill operations, it has been possible to develop a small industry concerned with the preparation of alder, white quebracho, and popple lumber for the Buenos Aires market. This lumber is prepared into pieces of 8 to 10 feet and with a diameter of from 2 to 8 inches, rough, and it is piled on barges and shipped down the Parana River to the consuming centers.

In all Argentina there are perhaps 20 sawmills. The mills in the southwestern section, as already stated, are very small and supply the small demand of the neighboring towns. The mills in the north supply the demand of Santa Fe, Rosario, Buenos Aires, and many small towns located on and near the Parana River. Those mills, also, are of very small capacity.

One of the most important phases of the Argentine lumbering and sawmill industry is that concerned with quebracho, for both the preparation of quebracho extract and the exportation of quebracho logs to the United States, Germany, and a few other countries where there are facilities for the manufacture of quebracho extract. It should also be noted that large quantities of quebracho are used in Argentina for ties, fence posts, etc. The various divisions of the quebracho industry, however, are, in order of importance: preparation of the extract, preparation of the logs for export, and local manufacture of lumber products.

Owing to its importance as one of the major industries in Argentina, it would seem worth while to consider in this connection the quebracho-extract industry, as an attempt is made to use scientific methods in the handling of the logs, and modern equipment is found in the sawmills and the wood-preparation sections.

The first quebracho-extract factory was set up in Argentina in 1902, in the Chaco. At present there are 32 factories in South America, 27 in Argentina, and the remainder in Paraguay.

The Argentine and Paraguayan factories taken together represent a total investment of 180,000,000 paper pesos (approximately $75,600,000) and have a total maximum production capacity of about 400,000 tons of extract per year.

In the quebracho sawmills and extract factories, inasmuch as a large proportion of the capital involved is European, the machinery in use is usually British, German, French, or Belgian, although American circular and band saws are used to a large extent. In view of the unfavorable condition of the quebracho industry at the present time, the only purchases of machinery and equipment are those necessary in the course of normal operations. Extensions to existing facilities are not likely to be made, as the quebracho forests are expected to be entirely destroyed in the next 30 to 35 years. The plants have been operating for some time at part capacity.

GENERAL EQUIPMENT AND METHODS

The Argentine sawmills find little incentive to increase the amount or quality of their equipment or to introduce labor-saving methods tending to increase production. The importation of lumber from abroad is done on such a large scale that the market for Argentine lumber is very clearly defined and is already being supplied by the existing sawmills. To install modern, costly machinery would merely increase capital expenditure without affecting fundamentally the factors that militate against the greater use of Argentine sawmill products, which are principally lack of extensive forests of woods in demand and high transportation costs. From the beginning, sawmills in Argentina have made use of human labor in the handling of logs and lumber, hence the conveying devices and machinery in use are very primitive.

No special attention has ever been paid to wood utilization in preparing imported lumber. There is no importation of logs, therefore, the usual wastage in the form of slabs, top logs, etc., is not encountered. The only wastage is in the form of pieces which are left over from cutting up the large sizes into smaller sections The high cost of lumber acts naturally to cut down this loss as much as possible In the preparation of lumber from logs of Argentine origin no attention is given to saving and utilization

A large proportion of Argentine sawmills, perhaps 90 per cent. use electricity as a source of energy In all cases where new power equipment is to be installed electrical equipment is used Mills over 10 years old have utilized steam-boiler plants Extensions and replacements in recent years have largely increased the use of electrical equipment The absence of deposits of coal in Argentina and its consequent high cost, as well as the high cost of other fuels, leave little room for doubt that the use of electrical energy in sawmills is to become universal

Kiln-drying equipment for the seasoning of lumber is not used. Climatic conditions in the lumber regions are such that seasoning may be very satisfactorily done by merely stacking the lumber out in the open. Deliveries are then made from the piles that have been standing in the open the required minimum of time

INDUSTRIAL RAILWAYS

As stated before, the most important organizations conducting lumbering operations in Argentina are the quebracho-extract manufacturers, the most important of whom have found it necessary, because of geographical conditions, to construct extensive industrial railway systems on their properties for handling the logs One large company, for instance, which owns 2,800,000 acres of land in northern Argentina and plants with a capacity of 165,000 metric tons of extracts, has found it necessary to maintain and operate a railway system 400 miles in length A second company has a line 29 miles long and transports annually about 9,000 tons of lumber Another company also operates an industrial railway which is 38 miles in length Only part of the system is used as a lumber-transport system Still another concern operates extract factories capable of producing about 110,000 tons per year Two railroad systems, having a total length of about 80 miles, are used to convey the logs from the forests to the mills In addition, it has an industrial railway line 17 miles in length feeding the extract factory at Colonia Benitez

A lumbering company operates two industrial railways in connection with its forest reserves in the Province of Santa Fe and the Territory of the Chaco That company has large land holdings and sawmills in the northern forests of Argentina Another firm operates a short industrial railway for the use of its lumbering camp in the Province of Catamarca Another lumbering company operates 23 miles of line for the exploitation of its timber lands in the Provinces of Santiago del Estero and Catamarca That company has 100,000 acres of woodland Still another company owns 25 miles of line which it uses in the preparation and transport of firewood The company also operates a sawmill A lumbering company whose chief business is to secure and sell firewood operates an industrial railway 26 miles long in connection with its forestal operations at Quilino, Province of Cordoba

All of the operators of the industrial-railway systems mentioned have found it necessary to develop an extensive system of rough dirt roads or paths through the forests in order to transport the logs from the forests to the railway lines. On these roads horses, bullocks, and automobile trucks are used, the logs being prepared in the forest to permit of easiest handling. Logging machinery is not used to any extent, although some attempts have been made in the past to introduce improved felling, stripping, and log-handling gear. The cheapness of human labor and the natural tendency to continue using old-time methods have, perhaps, been the main reasons for the lack of success.

IMPORTS OF SAWMILL MACHINERY

American machinery firms have not been exporting sawmill machinery to Argentina in anything like significant amounts, the average yearly value of shipments having been only about $25,000. Imports of sawmill machinery are not separately classified in the Argentine customs statistics, and it would, therefore, be extremely difficult to determine the total amount of imports. Some equipment is known to come from France, Belgium, Great Britain, and Germany. Considerable success has been experienced by American manufacturers in supplying the demand for circular and band saws. During 1924, 1925, and 1926 there were imported 258,652, 310,427, and 270,043 kilos, respectively, of saws of all kinds, of which the United States supplied an average of about 35 per cent. The remainder of the demand was supplied by German, French, and Belgium manufacturers, in that order. Detailed figures of imports of saws in 1927 and 1928 are as follows:

IMPORTS OF SAWS INTO ARGENTINA

Kind	1927	1928
Small handsaws .... kilos..	80,663	123,618
Handsaws with handles .... dozens..	732	890
Large cross-cut saws .... kilos..	14,019	21,169
Circular and band saws .... do....	151,917	202,236

In supplying the demand for saws of all types American manufacturers have been in the lead. They have supplied equipment better able to handle the hardwoods of Argentina, such as white and red quebracho, etc. The mechanism for bringing the wood up to the saw is usually very simple in Argentine sawmills, being usually made of quebracho and fabricated on the spot. For handling softer woods, such as cedar, Belgian saws and carriages are often found, the feeding mechanism being in many cases automatic.

WOODWORKING INDUSTRY

The woodworking industry in Argentina is almost entirely taken up with the manufacture of furniture, boxes, doors and windows, and a few miscellaneous wood products. As an outlet for American machinery, the woodworking industry is much more important and more worthy of consideration than the sawmill industry.

Owing to the fact that Buenos Aires and neighboring sections are the localities in Argentina offering greatest demand for wood products, the larger and more important plants are to be found in Buenos Aires, although a host of smaller establishments are found throughout the interior of the country It has been stated that there are about 840 woodworking plants in Argentina, 140 of which are located in Buenos Aires

The many small plants make use in large measure of handwork and have only a very small output Moreover, it should be pointed out that many of the establishments are nothing but small sawing plants whose work is concerned with the sawing up of firewood, rough planking for construction, etc , and which are not woodworking plants in the strict sense of the word

The furniture-manufacturing industry is easily the most important of the woodworking industries in Argentina In Buenos Aires alone there are seven large manufacturers whose products include all of the most important furniture articles in use in Argentine homes The furniture industry has been developed to such an extent that local demand is almost entirely supplied by it Two or three of the firms, moreover, produce articles comparable with those produced in factories in the United States and Europe In addition to the furniture factories in Buenos Aires, there are about 550 medium and small plants located in the various population centers of the interior

During recent years a steady increase has been taking place in Argentina in the demand for office furniture, most of which has been imported The local manufacture of office furniture has been increasing also, and at the present time there are about 10 office-furniture factories of medium and small importance Manufacture of office furniture is expected to continue on the increase in Argentina, with the probable expansion of existing factory facilities

An important section of Argentina's industrial life is represented by the manufacturers of doors and windows and interior woodwork in buildings There are 37 factories in Buenos Aires engaged in manufacturing doors and windows All of these factories, however, are also manufacturers of rough furniture, boxes, and the like A small number of the factories make doors for stock which are much cheaper in cost than those imported from the United States, although the workmanship and materials are inferior Panels are usually of pine or spruce. There are several mills in Rosario whose work is of fair quality These mills use native cedar to some extent, but the greater part of their lumber is imported

There is a large demand for ornamental wood turnings, such as posts, pillars, balusters, handrailings, etc , for use in interior decoration and finish A large amount of such material is also used by furniture manufacturers, many of whom do not have their own turning lathes or whose demand is so small that it is cheaper to purchase from a manufacturer The seven mills in Buenos Aires and three or four small ones in Rosario and Santa Fe appear to be supplying the market successfully

Besides the furniture manufacturers, some mention should be made of the small furniture and cabinet makers doing artistic work chiefly by hand There are about 60 such establishments in Buenos Aires

As their output is largely handmade, there would be practically no demand from them for woodworking machinery, although some may be interested in small portable equipment, such as drills, polishers, etc

Apart from the regular woodworking plants, there are said to be 26 box-making plants in Buenos Aires In the interior very little development has been made in box making The industry has paid little attention to quantity production and standardization, and the equipment used in most of the plants consists only of a handsaw and a planer, usually imported from France or Belgium Some of the box makers are beginning to make use of plywood in certain types of boxes The plywood used in box making arrives in squares of 3 to 5 feet, 3 to 4 millimeters in thickness Besides birch, some success has been obtained from the use of alder plywood from Russia Plywood importers are expecting a great increase in the use of plywood in boxes and feel that an impetus would be given to its use were it possible to obtain machinery capable of making boxes of various sizes automatically or semiautomatically One factor making for high cost of plywood boxes is that handwork has been used almost entirely

EQUIPMENT AND METHODS

In general, Argentine woodworking plants, furniture factories, sash and door mills, etc, work with very small capital, have a small output, and use very little modern labor-saving mechanical equipment Bench saws and planers are usually of extremely simple types and, except in a few cases, do not have automatic feeding and stock-handling attachments There is no demand whatever for large, high-speed, high-output planers, matchers, surfacers, and the like Machinery of these classes, of American manufacture, has been said to be too complicated for use by the type of labor found in the local woodworking mills Another factor working against American machinery is its high cost as compared with European machines, which come to Argentina in the very simplest types and are sold at prices so much lower than those quoted on American machines as to permit of practically no competition That American manufacturers are able to offer machinery of greater speed and production has very little influence on demand and sales

Woodworking mills make much use of band saws of simple types These machines, also, are usually of European origin, although the saws in many cases are imported from the United States Although there is no separate classification in the Argentine customs statistics for woodworking machinery, it is known that Belgium and French machinery predominates in the market. Some of the woodworking machinery in the larger plants comes from Germany and Sweden Imports from the United States are very small, indeed The Argentine woodworking industry has developed without any attempt at organization of those in the industry, with a consequence that there are many very small plants, all working in competition There is no apparent tendency to a unification of forces and the building of modern factories Under the present conditions it will be difficult to introduce American machinery

Most of the woodworking mills are able to obtain a steady and reliable supply of electricity, and many have availed themselves of the opportunity of purchasing low-priced portable equipment. Small electric-driven portable saws also are coming into the market in increasing quantities. These tools are usually of American manufacture.

[The Commercial Intelligence Division of the Bureau of Foreign and Domestic Commerce has on file lists of the principal Argentine quebracho extract factories, woodworking establishments, and furniture factories. These lists are available to qualified American firms on application to that division at Washington, D. C.]

BRAZIL

By Gregory H. Eickhoff, American Trade Commissioner, Rio de Janeiro

SAWMILL INDUSTRY

In a consideration of Brazil's lumber and milling industry it is well to bear in mind that it is estimated that 50 per cent of the country is covered with forests of one sort or another. Two hundred and fifty-four varieties of timber have been named, classified, and tested. The nature of the forests makes the exploitation of any one variety difficult and expensive, there not being enough trees of any one variety in a reasonable area to justify the use of mechanical methods. Traveling jobbers contract with landowners for logs. These are sold in the consuming centers and sawed in local mills to meet the demands of individual consumers.

Until the beginning of the pine industry in the State of Parana softwood lumber reached Brazil from Russia, Scandinavia, and the United States; following the erection of mills the imports have gradually decreased, until at present only heavy timbers, box shooks, and certain other special cuts are in demand. American timber cruisers have placed the commercial stands at 5,000,000 M feet, the combined mills of Parana having an annual capacity of 100,000 M feet. At present the market is suffering from overproduction, which has compelled many small mills to shut down.

The following table shows Brazil's imports of lumber. Data on the origin of the imports are not available.

IMPORTS OF LUMBER INTO BRAZIL

Year	Kilos	Value	Year	Kilos	Value
1922	1, 664, 790	$60, 998	1925	2, 733, 158	$115, 280
1923	1, 584, 707	79, 617	1926	6, 445, 819	260, 372
1924	3, 458, 958	145, 265			

In 1927 Brazil exported 199,611,296 kilos of lumber valued at $2,872,720; in 1928, 112,487,988 kilos, valued at $2,685,860. Milled planks and boards accounted for 1,480,719 kilos in 1927 and 1,368,879 kilos in 1928. Approximately 60 per cent of the exports go to Argentina; the remainder, principally hardwoods, goes to all parts of the world.

There is thought to be but one company in Brazil having a modern plant with a complete American installation. Others use German, English, Belgian, and French machinery, buying United States materials when they are competitive in price with the European products American saw manufacturers have enjoyed a fair turnover, well-known brands being carried in stock for discriminating buyers

Where carriages are used the belt-type feed is generally installed Small mills are satisfied with simple steel rollers in a metal frame

Mills are content with their present equipment Owing to the present state of the lumber market, none are contemplating improvements

One mill handles its logs with steam skidders to railroad and hoists and conveyers at plant The average operator uses oxen for skidding and manual labor at his mill Lack of capital investment combined with low wages permits owners to make a profit using the most primitive methods

The waste caused by a wide cut is an unimportant factor in the local lumber industry Wood utilization, economy of operation, and recovery of small cuts, ends, and slabs is unknown

Two large mills use wood-fuel boilers for their power equipment, others use water wheels or electric motors, no coal-fired plants exist Lumber generally reaches the market in the form of rough planks, the buyer reducing it to his requirements, either in the shop or on the job Practically no kilns are used Cabinetmakers and other woodworking shops buy green timber, holding it until it reaches the point of dryness they consider necessary

WOODWORKING INDUSTRY

In the city of Rio de Janeiro 50 plants have sawing and planing machinery In addition, 93 small carpenter shops make furniture, doors sashes, boxes, and cabinets No airplane plant yet exists, nor do any of the mills or shops turn out materials until ordered Employment is constantly fluctuating, owing to the uncertainty of orders As the European apprentice system is followed, many young boys are seen working next to grown mechanics With the low wages existent plus the speed and efficiency of local craftsmen, many shops have found machinery uneconomical

It is estimated that less than 10 per cent of the machinery in use comes from the United States No criticism exists against American equipment; however, the prices and credit terms range much higher and shorter than those offered by European competitors

German, Belgian, and French manufacturers are installing electrically driven machines in shops on the installment plan Final payment is usually made at the end of two years

The average small shop is usually equipped with a wood lathe, a band saw a scroll saw, and a saw table The large establishment will have, in addition to the above, dadoing, shaper, joiner, and planing machines Ninety-five per cent of all shop machinery is electrically driven

Peroba is the wood commonly used for tables, chairs, cabinets, and first-class interior doors High-class furniture is fabricated from jacaranda, or imbuya veneer Cedro or a hardwood enters the sash-frame and door line, the wood used being a matter of price and personal selection Practically all shopwork is of a very high grade

The tendency is toward small shops, large plants are not considered so efficient, owing to the peculiar temperament of the workers. The Brazilian woodworking business is in no way comparable with similar organizations in the United States

Typical wages are as follows Boys (apprentices), 5 to 7 milreis per day, helpers, 7 to 10 milreis per day, cabinetmakers, 12 to 15 milreis per day (One milreis equals 12 cents) In many shops chairs, sash, and frames are made on a piecework basis.

All machinery installations made during the last two years are of the direct-drive type; other belt equipment is belt fitted

Price is the ruling factor in machinery sales, with long-time credit terms general

[Lists of sawmill and woodworking plants and distributors of sawmill machinery in Brazil may be obtained from the Commercial Intelligence Division of the Bureau of Foreign and Domestic Commerce, Washington, D C]

CHILE

By Robert G Glover, Assistant Commercial Attache, Santiago

The impetus given to the domestic manufacturing industries in Chile during the past two exceptionally prosperous years has apparently favored woodworking establishments to a greater extent than others The large and diversified construction program which the Government has been carrying on since the latter part of 1927, together with increasing activity on the part of private capital in both business and residential buildings, especially in recent months, has resulted in an abnormal demand for all classes of lumber and furniture

The Government, in conformity with its policy of encouraging the building up of national industries in which the country possesses an abundance of raw material, has given both sawmill and woodworking industries ample protection by placing an almost prohibitive duty on the importation of lumber, furniture, and other items manufactured from wood Woodworking plants have been enjoying unusually good business and will continue to prosper for some time to come, since there is a heavy building program in progress

All together, there are 14 different kinds of Chilean timber which are abundant enough to be exploited commercially They are alamo, laurel, roble pellin, coigue, olivillo, ulmo, rauli, lingue, cypress, alerce, litre, luma, mañiu, and tenio Most of them require air drying on account of the excessive amount of water or sap they contain

SAWMILL INDUSTRY

Circumstances in Chile have resulted in the sawmill and woodworking industries becoming almost entirely separated Logging is very expensive because the principal timber growths are found either in the swampy low lands or on mountain sides, and as the lumber market, up until the present time, has been somewhat small, very few concerns with sufficient capital to make proper installations for cutting lumber on a large scale have been attracted to the Chilean sawmill industry Most of the lumber, even to-day, is sawn in portable mills whose daily capacity ranges under 10,000 feet

Instead of cutting lumber to special order, as is the practice in the average lumbering country, mills follow the practice of squaring the larger sticks suitable for remilling purposes and cutting standard sizes, such as 2 by 4, 2 by 6, 2 by 8, 4 by 4, and 1 inch boards No attempt is made to finish lumber for the consuming trade, but instead it is stacked to air dry and is then sold to concerns engaged in remilling and selling to the consuming trade

Remilling concerns generally send buyers, who are also their inspectors, to the small sawmills, where stocks are purchased and inspections are made at the same time Stocks are generally selected that have been stacked from 6 months to 2 years, that is, where lumber is to be used for finishing purposes or turned into furniture and cabinets The principal lumber-retailing companies own their own freight cars, and one concern, in addition to having its own cars, has coastwise steamers In past years lumber people were often held up on shipments, owing to a shortage of railroad rolling stock, and for that reason the large firms acquired their own cars Now that railroads have improved their service, there is no further need for lumber concerns to follow this practice

WOODWORKING INDUSTRY

The woodworking plants, like the sawmill plants, are mostly small concerns engaged in supplying the demand in the locality in which they are situated There are, however, a few large firms which have lumberyards and remilling plants in different sections of the country, but they seldom attempt to sell or ship finished lumber outside of the community in which their remilling plant are located

Carpenter labor is still very cheap, the average being around the equivalent of $2 25 and $2 50 per day Railroad freight rates are high, and at the same time there is practically no standardization in building materials, which makes it very difficult for large plants to operate on mass-production principles and sell to retail lumberyards throughout the country Practically every building has different specifications for doors, sash, and moldings Since Chilean carpenters are quite efficient and relatively cheap, they have been successful in underbidding the larger planing mills, especially in localities other than where the most important plants are located

The same conditions exist in the funiture and cabinet industries, except that the machinery is less modern The latest statistics, published in 1925, show a total of 203 woodworking plants in Chile, representing a total investment ot 57,272,457 pesos (about $6,875,000) and giving employment to 4,448 persons No doubt the number of plants to-day is twice that of 1925 and the employees around 10 000 Without doubt the amount of capital invested has increased in the same proportion, if not more

TYPES AND SOURCES OF MACHINERY USED

Import statistics are not in sufficient detail to permit an analysis as to the number and type of units of woodworking machinery imported. since both sawmill and woodworking machinery are grouped under the same heading The following are the figures for 1927 and 1928

IMPORTS OF SAWMILL AND WOODWORKING MACHINERY INTO CHILE

Country of origin	1927		1928	
	Kilos	Pesos [1]	Kilos	Pesos [1]
Germany	157, 701	436, 797	81, 474	228, 424
Belgium	73 610	103, 153	32, 539	79, 174
Argentina	210	200	--	--
United States	44, 065	347, 527	31, 846	130, 116
France	9, 435	100, 108	4, 360	9, 234
Great Britain	14, 964	94, 524	10, 983	89, 626
Sweden	6, 329	17, 649	6, 351	16 949
Netherlands	--	--	2, 440	4, 890
Ecuador	--	--	4, 544	29, 100
Total	306, 314	1, 099, 958	174 537	587, 513

[1] The Chilean peso is equivalent to about $0 12

Although 1828 was decidedly a better business year for sawmill and woodworking plants, machinery importations fell off almost 50 per cent over the previous year This decline was largely due to heavy orders placed by a few of the larger mills in 1927 for high-production units Another factor was that the numerous small furniture factories began expanding very fast that year

As will be seen from the above figures, Germany is the largest supplier of machinery, with the United States second Germany furnishes the largest volume in cheap and small equipment, whereas the United States contributes almost all of the larger units or high-production machines Both France and Belgium are also competitors in the low-priced market, but neither country has so a wide a distribution as Germany In Santiago and Valparaiso, the largest cities in Chile, about 50 per cent of the machinery and mill-supply houses represent German manufacturers, and any great increase in United States participation in the trade is dependent on establishing more distributors who will actually carry in stock a varied line of woodworking machinery

METHODS IN VOGUE

Labor costs, although they have been steadily rising, have not yet reached the point where lumber mills and woodworking establishments are compelled to install labor-saving units and higher-production equipment Average wages paid mill superintendents in a plant which employ, around 100 men are from the equivalent of $3 50 to $4 50 per day, sawyers in remilling plants draw about $2 to $2 50 per day, lumber inspectors, $1 50 to $1 75, common laborers average about $1, cabinetmakers and wood carvers receive from $3 to $3 50 Naturally, with a low wage scale, small plants are reluctant to buy modern and high-production machinery The few mills that have installed American machines seldom run them at the maximum capacity Practically no planers, molders, matchers, or surfacers are geared to feed at over 150 feet per minute, as a matter of fact, many feed less than 100 feet per minute Mill owners claim that machine operators are not sufficiently skilled to turn out good-quality work at high speed, therefore, they prefer to run their machinery at low speed even though it may be high-production equipment The quantity of special equipment in the larger mills, such as special sanders, multiple cutting-off saw frames, sawing and dadoing machines, universal saw benches, variety saws, and mitering, beveling, and other types of automatic machines, is very small The tendency is to use hand labor for many operations

EQUIPMENT IN USE

Saws and band-saw frames of the larger types are mostly imported from the United States Small and slow-speed equipment is generally supplied by European manufacturers, the majority being imported from Germany, with the remainder coming from Belgium and France During 1929 a few large band-saw frames were imported from Germany, owing to price, but in practically every instance the speed of the machine is relatively slow, and the machine is used where daily production is not a vital question

Saw hammering, filing, and brazing equipment, even in the larger plants, is very inadequate, and also for the most part old equipment For the larger mills the United States supplies most of the market's requirements

European manufacturers are at the present time supplying over 60 per cent of all planer knives sold in Chile Germany, Sweden, France, and Belgium supply all of the cheap knives imported A large foundry in Chile makes a few knives, but as the European article is very cheap and of about the same quality, it is unlikely that this concern will increase its activities American-manufactured knives are used only on the larger or higher-production units, and as the number of such machines is not great compared to the small and slow-speed machines, importation of knives from the United States will continue to be of little importance unless American concerns advertise more extensively in the interest of their product Every establishment appreciates the high quality of American-made knives, but since European prices are anywhere from 40 to 60 per cent less, the small plants generally use the cheaper type.

Although the furniture and cabinet industry has had a large growth during the past two years, there is hardly a plant in Chile that can be classified as modern As these small plants have been growing they have gradually added new machines, not taking into consideration standardization or cost of production

MARKETING INFORMATION

Generally speaking, whenever new equipment is needed, price is the governing factor, and this naturally militates in favor of European manufacturers There appears to be little likelihood of American manufacturers participating to any large extent in the demand for furniture and cabinet machinery until such time as local plants reach a high-production stage or manufacturers send engineering salesmen to the market who can outline to the respective plants the advantages of modern machinery and show them that by putting in labor-saving equipment they will not only lower production costs but turn out a better grade of work In view of the small market for furniture and cabinets, together with other conditions mitigating against large plants, such as high freight rates and low carpenters' and cabinetmakers' wages, it is problematical whether the expense and effort would justify the undertaking

Practically 95 per cent of the woodworking establishments in Chile are run by electric power Only one plant that is of any size has direct driving equipment, the others take their power from the main shaft or counter-driven shafts Current at 380 volts, 3 phase, 50 cycles is most common in Chile, however, there are still some places where 440-volt direct current is used The tendency seems to be to standardize on alternating current, and manufacturers should, in general, avoid quoting on machinery equipped with direct-current motors

OUTLOOK

Notwithstanding the fact that the tendency of both planing mills and furniture and cabinet factories is toward small plants, there is an opportunity for American manufacturers to sell some equipment in Chile For example, at the present time, less than a dozen of the better woodworking plants are equipped with dust and shaving blowers Likewise, there is an increasing demand for dry-kiln equipment, especially since stocks of air-dried lumber are very low at the present time and will continue so Sawmills will be unable to produce a sufficient quantity of lumber whereby 12 months' supply can be stacked for air-drying as has been the case in past years It is estimated that 80 per cent of the woodworking establishments in Chile do not have dry-kilns, and in those now in use the equipment is very old and entirely inadequate to take care of requirements when it comes to passing all their lumber through kilns before working Most of the Chilean lumber can not be dry-kilned immediately after being sawed, but must be stacked for air-drying for at least 6 to 10 months, after that it can be successfully used if it is passed through kilns

Labor-saving equipment for lumber handling and stacking is unknown in Chile, but now that labor costs are rising and will continue to do so, some headway can be made in inducing mills to install this class of equipment

American manufacturers stand little opportunity of increasing their business in the Chilean market unless they are willing to send their own representatives to call on the trade as practically none of the machinery and mill-supply houses pay very much attention to soliciting the woodworking trade, but instead merely await for customers to come in and ask for quotations

[Lists of the principal woodworking establishments and distributors of sawmill and woodworking machinery in Chile are available in the Commercial Intelligence Division of the Bureau of Foreign and Domestic Commerce Washington D C]

COLOMBIA

By Walter J Donnelly, American Commercial Attache, Bogota

SAWMILL INDUSTRY

The sawmill industry in Colombia is very crude in its present stage, with the exception of that at Barranquilla, where there is a modern band mill One company is installing a band mill near Bogota, but it is not yet completed The industry as carried on in the section surrounding Bogota consists of various portable circular-saw mills which are operated in an antiquated manner The wood is sold green as it comes off the saw A large amount of lumber is cut out of the logs by hand in the old whip-saw fashion

A great many different types of timber are growing in that section, practically all of which are commercial woods and some of an exceptionally fine quality The majority of the wood would be classified as hardwood, but there is a quantity of softwood available With the exception of three or four kinds, they are entirely different from the woods in North America The most expensive are pino, cedro, and nogal

Numerous individuals cut forests on their own property, using either the whip-saw method or small circular-saw mills

With the exception of that around Barranquilla, the lumber industry in Colombia is the same throughout the country However, a great variety of timber is to be found in the different sections, for example, the timber growing at low altitudes, in the "hot country," is entirely different from the timber at high altitudes, the stands at the high altitudes are much heavier and contain more commercial trees

Most of the machinery used is of American manufacture and mainly the product of one company No gang saws are used, and the only band saws in Colombia are those employed by the previously mentioned companies The types of carriages used vary

The lumber industry in Colombia is inadequately equipped, but steps are being taken to improve the type of machinery and the methods The increase in the cost of labor in 1927 and 1928, owing to the development of public works, has created a demand for labor-saving devices; but as yet these are practically unknown throughout the country

Most of the logging in the various lumber industries is done by oxen Logs for the band mill at Barranquilla are carried down the Magdalena River in rafts One company plans to use gravity log slides, also caterpillar and high-lead logging methods With these two exceptions, the mills are taken to the logs, not the logs to the mills, or the trees are cut and sawed by hand where they are felled. In cases where the portable mills are moved periodically to different parts of the timber the logs are hauled by oxen to the mills until a small territory has been cut, and then the mills are again moved to better timber Adequate conveyer facilities and loading devices are unknown

Colombia is rich in timber, with quantities of exceedingly fine hardwoods, but owing to the difficulty of transportation, practically no lumber is exported Because of the wealth of timber, no efforts are made to reduce the kerf, and in a great many forests the exploitation is carried on with a waste of about 75 per cent.

The demand for lumber in the various cities and haciendas throughout the country is substantial, and prices are extremely high Practically the only by-product to the lumber industry in Colombia is charcoal; large quantities are used A moderate amount of tanbark, secured in the neighborhood of Bogota, is supplied to the local tannery. Most of the slabs and saw waste is utilized for the manufacture of charcoal The charcoal is made in a primitive fashion by piling up the wood, covering it with earth, and burning it for several days However, one company is investigating the possibilities of marketing various by-products that could be produced by more scientific distillation

Power equipment used consists of hand, ox, horse, and mule power, steam boilers, electric generators, and gasoline tractors The steam power is generally obtained from small traction engines, and waste wood is used as fuel

The dry kilns in Barranquilla are modern, others will be installed in the neighborhood of Bogota The kilns in Bogota at present are ancient There is one being installed near Bogota which is of the modern type of moist-air kiln manufactured in the United States A substantial demand exists in Bogota for processed dry woods. The present practice is to process the wood before it is dry, but this gives such bad results that many contractors are forced to import wood flooring and other wood products

Logging railways are unknown in Colombia and probably could not be used, as the country is too mountainous and other methods are more suitable

WOODWORKING INDUSTRY

Woodworking machinery, with the exception of that in the mill in Barranquilla, consists of very small planers and matchers, most of the woodworking being done by hand by carpenters Such equipment as planing mills, sash and door factories, indoor-finish mills, etc , are not in operation in Colombia A company in Barranquilla and one in Bogota are planning to install the most modern machinery One company in Bogota manufactures flooring and does some planing This, however, is a small and old plant One or two other smaller concerns have planers and matchers

Cabinetmakers and machine operators receive from $1 50 to $4 per day Finishers come under the heading of cabinetmakers in Colombia Mechanics receive from $1 to $3 per day, and laborers from $0 80 to $1 20

With regard to efficiency and waste, the woodworking machinery appears to be just as inefficient as the sawmill machinery, although there is much less waste because the cost of the sawed lumber is very high

It is obvious that the present Colombian market for sawmill and woodworking machinery is small, and it is unlikely that new plants will be established until the present economic depression is ended The outlook is uncertain Despite the uncertainty, manufacturers might benefit by establishing agency arrangements in Colombia in order to take advantage of any improvement in the situation

[A list of dealers in sawmill and woodworking machinery in Colombia is available in the Commercial Intelligence Division of the Bureau of Foreign and Domestic Commerce, Washington, D C]

PERU

By O C Townsend, American Commercial Attache, Lima

The sawmill industry of Peru is not well developed, owing to the fact that the commercial forests, located near Iquitos, are too far from the lumber market and lack adequate transportation facilities

There are at present two sawmills in Iquitos, working cedar and mahogany in large quantities Other small sawmills, all of United States manufacture, have been bought by independent operators They are of the circular type, with carriage feeds and are, in most cases, driven by agricultural tractors They are used to turn out lumber from logs not over 1 meter in diameter and from 6 to 10 meters long

The circular-saw mills undoubtedly take a very thick cut, with the result that there is a large kerf Nothing is done to reduce such waste

Some of the small mills use steam tractors or boilers mounted on wheels For fuel they use the waste from the mill

It is believed that there is no kiln-drying equipment in any part of Peru

The only potential market for American sawmill machinery is the area near Iquitos

On the other hand, the Peruvian woodworking industry is very well developed The wood used most commonly is Douglas fir, imported in large quantities from the United States Some Central American cedar is used

There are six or seven general woodworking shops completely equipped with modern American machinery. They use large resaws for making boards, usually cutting up timber 12 by 12 inches and in all lengths Other common equipment consists of large and speedy planing, matching, and molding machines, and large band saws with carriages

Furniture manufacturing and cabinetmaking is done in plants entirely distinct from the general woodworking shops They are small shops with small machines, almost all of German origin In the general woodworking establishments, however, the machinery is almost entirely American

All woodworking machinery is up to date New installations are always being considered, since the demand for the products of the plants is constantly increasing Most of the mills are equipped with modern filing-room equipment

Most plants are efficient High production is obtained, as well as high production per worker All mills know the use of ripsaws, trim saws, cut-off saws, swing saws, miter saws, molding machines, shapers, planers, joiners, dadoing machines, and glue equipment, but no modern kiln-drying equipment is used by any of the mills in Peru Most of the mills use boilers to obtain their power, consuming mill waste as fuel While electric power is available, the price is so high that it generally does not pay to use it

Undoubtedly, price is a dominating factor in the purchase of machinery as far as the small carpenter shops are concerned

URUGUAY

By Spencer B. Greene, Acting Commercial Attache, Montevideo

The sawmill industry of Uruguay is extremely small, since there are no forests of commercially valuable woods in the Republic, consequently, all lumber is imported.

Pine from the United States undoubtedly leads in the imports into Uruguay. In 1927 the latest year for which figures are available, imports of pine amounted to 3,984,424 square meters. In addition to pine, the United States furnishes redwood, Douglas fir, and oak. The sawmill industry also uses quebracho, haya, Brazilian cedar and pine, Paraguayan vilaro and agaroble, pinotea, curupai, and Chilean alamo.

One of the largest sawmills of Uruguay has 3 band saws with carriages to handle logs up to 1 meter in diameter, 3 circular saws, 3 table planers, and various small molding, planing, and grooving machines. This equipment is comparatively modern, but some of the other plants have machinery that was installed many years ago and has not been well cared for. The machinery came largely from France, Belgium, and Germany, and appeared to be all that was required for the demands of the Uruguayan industry.

Logs, coming principally from Uruguay, average 1 meter in diameter and about 3 meters in length. They are brought down on river steamers or by rail and conveyed to the mills on motor trucks. Hand cranes are used to lift the logs to the stacks, and the handling from the stacks to the carriages is on small hand cars running on narrow-gauge tracks.

There seems to be little interest in the matter of kerf. As to wood utilization, in the plant described the short pieces are sawn into pickets or cut up into wooden soles for shoes, but in most Uruguayan plants they are burned under the boilers which furnish the power for the plants. Electric motors are used in some of the mills.

Kiln drying is not practiced. The wood is piled in sheds, after being cut, for air seasoning.

The woodworking industry of the country is very little developed.

[A list of the principal sawmills, carpenter shops, and furniture factories in Montevideo is available in the Commercial Intelligence Division of the Bureau of Foreign and Domestic Commerce, Washington, D. C.]

VENEZUELA

By O. R. Strackbein, Assistant Trade Commissioner, Caracas

SAWMILL INDUSTRY

The sawmill industry of Venezuela is small and in a comparatively low stage of development. Most of the equipment of the mills is old and of simple design. A modern mill, however, was recently opened at Maracaibo. American machinery predominates, but European machinery is also in evidence. Each mill generally has both circular and band saws, the one type for cutting hardwoods and the other for softwoods.

Both imported lumber and local logs are consumed in the mills, the greater part consisting of the latter. In the imported stock, pitch pine, Douglas fir, and redwood predominate, while among the local woods cedar, mahogany, apamate, jabillo, balsamo, pardillo, mijao, angelino, vera, ceraipo, araguanay, puy, canalete, carrito, mora, guayabo, caitan, canada, and zaqui-zaqui are consumed. The cedar is used for doors, windows, and furniture, while mahogany is also used for the latter purpose. Apamate is employed in ordinary work and doors, while jabillo and mijao are used in box making. For construction purposes vera, puy, angelino, araguanay, ceraipo, canalete, etc., are used. The entire product of the Venezuelan mills is absorbed by the domestic market.

In Caracas are located six mills which, it is estimated, saw from 500 to 600 cubic meters of lumber per month. The largest mill employs about 40 men, including the office and sales force. The remainder provide work for 15 to 25 men each.

In Maracaibo 5 or 6 mills are located, 2 or 3 in Valencia, 2 in Puerto Cabello, 1 in La Guaira, 1 in Maracay, 1 in Carupano, and 1 in Ciudad Bolivar.

The logs are handled largely by human labor. Generally a small trolley runs into the mill for moving the logs near the machines, where they are unloaded by hand and stacked. This makes them available to the men operating the saws, who take a log at a time, fasten it to the carriage, which moves on rails, and then, by putting on the power, move the log against the saw. This method is used for squaring the logs and for cutting long boards. Practically no loading or unloading devices exist, but labor cost is so low and the output so small that the installation of labor-saving devices would be a doubtful economy.

The mill owners, on the whole, feel that under present conditions of the market their equipment is adequate, but they probably do not realize that improvement of manufacture and reduction of cost might improve their market. A sales agent competent to show by practical calculation how costs might be reduced by the installation of modern equipment, it is believed, would be able to sell machinery. American machinery, however, is almost unanimously held to be too high in price, and German, Belgian, Swedish, and English machinery is being favored considerably.

The mills are not operated on a close enough margin nor on such a scientific basis as to direct attention to the kerf. Waste wood in some instances is sold as firewood, while sawdust is also sold at times as floor-sweeping material, but in one mill both these products are used for conversion into gas which is used as power to drive the machinery. In the few mills which use steam as power the waste wood and sawdust are used as fuel. Aside from use as fuel, no wood utilization is practiced.

In Caracas most of the mills are equipped for use of electricity, which is obtained from the local power companies. One mill, as stated above, manufactures its own gas, while yet another fires a boiler for steam power.

The logs come from the forests and mountains, dragged by oxen, usually to the nearest stream for floating to the sea. At the coast they are loaded on coasting vessels and sent to ports such as La Guaira, Puerto Cabello, etc Those logs which are not consumed in the seaports are sent to Caracas or other places by railway or, in some instances, by truck over the highways

Logging is primitive, only axes being used in felling the timber and squaring the logs Large-scale operation is out of the question because of the small demand and the scattered growth of the varied species The growths are mixed, and no areas are found in which only one kind of tree abounds It is customary to kill the trees by girdling them at the bottom and leaving them from 4 to 6 months to dry before felling them This practice decreases the weight of the logs transported and avoids the necessity of drying after reaching the mills The latter, generally, are located not for proximity to the forests but for nearness to the market

The mills do not saw for stock, with the exception sometimes of imported lumber such as pitch pine, but work according to the specifications laid down in orders Sales are made to carpenter or woodworking shops and to builders In Maracaibo the oil companies undertook in the beginning to purchase their lumber needs from the local mills, but they were generally unable to fulfill the contracts in the specified time, with the consequence that the buyers came more and more to import their needs It is sometimes charged, also, that the local mills added too wide a margin of profit to compete successfully with outside sources, especially since the petroleum companies obtain free entry for lumber

WOODWORKING INDUSTRY

The general woodworking industry consists of carpenter shops and furniture factories, none of which are large or modern One of the leading furniture factories in Caracas is equipped with saws and planers 30 and 35 years old, with 1 or 2 newer machines, the total number of machines not exceeding 6 or 7 The shops are predominantly equipped with German and Belgian machinery, although American machinery is also in evidence A larger plant was built comparatively recently, which failed, it is alleged, because of overequipment for the market The machinery was nearly all German and Belgian

It is ordinarily found that the woodworking shops, like the sawmills, have a mixture of American and European machinery Purchase of new equipment is usually piecemeal, with a bad effect upon orderly and systematic organization

The lumber used is that most usually cut by the sawmills—native mahogany, cedar, apamate, etc.

The machinery is often electrically driven, but handwork is depended on for all else Laborers receive about 6 bolivars (about $1 20 per day; machine operators, 8, 10, or 12 bolivars, depending upon their skill, while cabinetmakers are paid 12 to 16 bolivars, or $2 40 to $3 20

The work is generally slow In woodworking plants, as in the sawmills, much depends upon proper installation and operation of machinery The best machinery loses greatly in efficiency if it is poorly installed and improperly cared for In the sawmills great difficulty is experienced in obtaining expert filers and keeping them, especially if they are Americans A continuous process of education is required; and business is obtainable by firms which show the most intelligent cooperation with the mills and shops, by indicating proper operation of machinery and pointing out economies and advantages of modern machinery

[A list of the sawmills, distributors of sawmill machinery, and carpenter and furniture shops in Venezuela is available in the Commercial Intelligence Division of the Bureau of Foreign and Domestic Commerce, Washington, D. C]

U. S. DEPARTMENT OF COMMERCE
R P LAMONT, Secretary
BUREAU OF FOREIGN AND DOMESTIC COMMERCE
WILLIAM L COOPER, Director

AMERICAN UNDERWRITING OF FOREIGN SECURITIES IN 1929

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FOREWORD

The par value of foreign securities publicly offered in the United States during 1929 amounted to about $706,000,000, or less than half the 1928 total. Canada increased its total borrowings substantially, so the entire decline was in Europe, Latin America, and the Far East. Germany, which was the heaviest borrower in 1928, was fifth in 1929, with a total only one-tenth as large.

This decline in total foreign financing in the United States, while the result of many influences, is ascribed primarily to the speculation in stocks in the New York market. That speculation so raised money rates and so depressed the bond market that the flotation of foreign government bonds was less than one-fourth the previous year's total. Refunding issues all but disappeared. Since foreign corporations for the most part are reluctant to sell their stocks on a foreign market, and since they could find few purchasers here for their bonds, foreign corporate flotations likewise were limited.

The present bulletin was compiled by Paul D. Dickens, of the finance and investment division, under the direction of Ray Hall, acting chief. That division welcomes inquiries on any phase of foreign investments.

William L. Cooper, *Director*
Bureau of Foreign and Domestic Commerce.

April, 1930

AMERICAN UNDERWRITING OF FOREIGN SECURITIES IN 1929

INTRODUCTION

The finance and investment division counts as "foreign capital securities publicly offered" all new issues, floated here, of the stocks, bonds, and long-term notes of (1) foreign governmental units and foreign corporations and (2) of concerns which, though incorporated in the United States, invest wholly or heavily abroad When an American corporation of this second class increases its capital by issuing subscription rights to its stockholders, the new issue is counted a public offering Such an issue differs from the others only in that there is no deduction for underwriters' commission Likewise, stock issues to stockholders by foreign corporations are included if a reasonably accurate estimate can be made of the shares taken by stockholders in the United States

Private compilers of new foreign capital issues sometimes count all of an issue when a portion of it is known to have been underwritten abroad, thus creating important differences between their figures and those used in this bulletin, particularly in the case of Canadian issues Furthermore, they sometimes include private credits Their total par values are likely to deviate less from the totals herein than their "net nominal values," as no private compiler attempts to differentiate between "refunding" and "refunding to Americans"

SCOPE AND METHOD OF PRESENT STUDY

The finance division compiles current information upon the individual issues directly from the numerous primary sources, and publishes its tentative compilations quarterly in Commerce Reports Later these tentative compilations are compared, item by item, with the lists of the several private compilers, and each discrepancy is reconciled by inquiries addressed to the underwriters or issuers

The allocation of issues to the borrowing country, as listed in the tables throughout this bulletin, is in certain cases arbitrary The attempt has been made, however, to allocate the proceeds of issues to the countries in which they will ultimately be expended To illustrate The Lautaro Nitrate Co is an English corporation owning properties in Chile, accordingly, the amount of this issue which was purchased in the United States has been entered under Chile Likewise, the issues of several American companies operating in more than one foreign country have been divided according to the best information available as to the country in which the expenditure was made, where division by countries was not possible, they were listed as "international"

Some types of transactions have been omitted from the bulletin because of the impracticability of obtaining adequate information regarding them These are (a) the purchase and sale of foreign securities in small lots by United States investors, either privately or through dealings on the stock exchanges, (b) the stocks of foreign corporations which are quoted and traded in on the New York Curb Exchange to make a market for them in this country, and (c) purchases of stocks by the holder of foreign corporate bonds which carry warrants

EXPLANATION OF TERMS USED

A few of the terms used need explanation "Nominal capital" refers to the par value of the securities actually sold in the United States A $1,000 bond or a preferred share of $100 par value sold at 90 would be listed at its full face value, $1,000 or $100 as the case may be Common stocks and units of common and preferred stock are listed at the selling price "Estimated refunding to Americans" refers to the redemption of bonds or notes held by investors in the United States which had previously been sold publicly or privately in this country; it does not cover the repayment of short-term bank obligations "Estimated net nominal capital" is the nominal (face) value less the estimated refunding To determine the new capital obtained by foreign countries through securities publicly offered in America during the year adjustments must be made for the discounts or premiums at which the securities were sold, for the commissions of the American underwriters, and for the "lag" in remitting the proceeds to the issuers

The schedule of security issues appended to this bulletin as Table 9 and the major tables inserted in the text contain two classifications—(a) governmental, provincial, and municipal issues, including "corporate issues officially guaranteed or controlled," and (b) corporate issues When "government issues" are mentioned in the text, however, only those issues which are the direct obligations of national, provincial, or municipal administrations are included Except where specifically noted otherwise, the classification "corporate issues" embraces only issues of purely private character

These figures of public offerings must not be confused with America's net export of long-term capital—nor with America's net export of capital, which must measure also this country's international movement of short-term capital The net outflow of capital from the United States is estimated in the bulletin entitled "Balance of International Payments of the United States," compiled annually by the Finance and Investment Division That bulletin (the next issue of which will appear in May or June) includes computations or estimates of a dozen long-term and an even larger number of short-term capital movements The principal long-term items omitted from this present study pertain to "direct" investments, bond-redemption and sinking-fund operations, and the international exchange and arbitrage of securities

FOREIGN SECURITIES PUBLICLY OFFERED IN UNITED STATES

The par value of foreign securities publicly offered in the United States during 1929 was $706,000,000 This was the lowest annual total of American foreign financing since 1923 During 1929 refunding to Americans was estimated at $35,000,000, or less than in any year since the close of the World War, leaving a balance of about $671,000,000 net (new) nominal capital The discount at which these foreign securities were sold aggregated $12,500,000, while the premiums aggregated $1,500,000 This leaves $11,000,000 to be deducted from the net nominal capital, to arrive at an approximation of the sums invested by Americans during the year in this class of foreign securities

The following table compares foreign capital issues in the United States by years from 1914 to 1929

TABLE 1—TOTAL FOREIGN SECURITIES (GOVERNMENTAL[1] AND CORPORATE) PUBLICLY OFFERED IN THE UNITED STATES, 1914–1929

Period	Number of issues	Nominal capital	Estimated refunding to Americans	Estimated net nominal capital
1914	19	$37,722,750		$37,722,750
1915	87	833,494,614	$19,500,000	813,994,614
1916	104	1,131,080,264	7,750,000	1,123,330,264
1917	64	718,147,450	32,000,000	686,147,450
1918	30	29,715,000	1,600,000	28,115,000
1919	81	813,244,700	250,920,300	562,324,400
1920	105	636,191,357	151,000,000	485,191,357
1921	109	675,112,963	44,105,083	631,007,880
1922	136	828,399,284	146,121,300	682,277,984
1923	73	495,662,100	82,000,000	413,662,100
1924	129	1,219,541,687	291,047,945	928,493,742
1925	156	1,329,920,750	244,540,000	1,085,380,750
1926	214	1,318,554,850	183,895,200	1,134,659,650
1927	253	1,592,595,760	216,882,700	1,375,713,060
1928	220	1,487,861,680	236,910,413	1,250,951,267
1929				
January	19	38,716,850	4,000,000	34,716,850
February	26	51,422,750	5,750,000	45,672,750
March	16	184,024,850		184,024,850
First quarter	61	274,164,450	9,750,000	264,414,450
April	10	12,658,700		12,658,700
May	14	63,285,347		63,285,347
June	21	128,226,100	10,550,000	117,676,100
Second quarter	45	204,170,147	10,550,000	193,620,147
July	7	41,708,000		41,708,000
August	3	25,250,000		25,250,000
September	6	13,197,245	500,000	12,697,245
Third quarter	16	80,155,245	500,000	79,655,245
October	11	42,294,500		42,294,500
November	5	35,095,000	1,500,000	33,595,000
December	10	69,888,339	12,236,875	57,651,464
Fourth quarter	26	147,277,839	13,736,875	133,540,964
Year	148	705,767,681	34,536,875	671,230,806

[1] Includes central Government, provincial, and municipal issues and officially guaranteed or controlled corporate issues

The flotations by months necessarily were small in volume March was exceptional, however, due to a $100,000,000 issue of preferred stock by an American corporation whose operations are confined to foreign countries, and June likewise far exceeded all but the March total, due chiefly to two large Canadian railway issues

CONDITIONS AFFECTING VOLUME OF FOREIGN FINANCING

The volume of foreign financing in the United States, especially in the form of publicly-offered securities, is sensitive to political and economic conditions abroad as well as to financial conditions in this country In Europe, which borrowed so heavily in 1928, political conditions in 1929 were generally such as to restrict foreign borrowing. The negotiations for the revision of the Dawes Plan, and the resulting uncertainty, continued throughout the year, for although the experts who met at Paris agreed on the technical aspects of the problem in June, the political representatives of the governments concerned failed of complete agreement until in January, 1930 This circumstance prevented any important volume of issues not only by Germany but also by Austria and Hungary, since the reparations obligations of the latter were tied up with the German reparations problem Foreign borrowing by certain other European countries was discouraged by their internal political situation

Economic conditions in Latin America were partly responsible for the serious decline in Latin American governmental issues The export of corn and the production of wheat by Argentina, two of the most important items in the national economy of that country, declined seriously during 1929 Low coffee and sugar prices during 1929 seriously affected business in Brazil and Cuba, and to some extent in Colombia and the Central American Republics Argentina, Brazil, and Colombia had been among the heaviest borrowers in 1928

The appearance of unfavorable fiscal situations furnished additional deterrents to new Latin American governmental issues As these fiscal developments became more widely known the prices of Latin American securities already outstanding in the United States receded, thus diminishing the probabilities for success of new flotations here

THE AMERICAN MONEY MARKET

Money-market conditions in the United States during 1929 were such as to prevent a large volume of new foreign financing During the first nine months interest rates were continuously at unusually high levels, which discouraged borrowers seeking new capital through bond offerings Then, the unsettling effects of the stock-market collapse in October, the severest in history, discouraged new issues during the fourth quarter

Part of the slowing up of the bond market may be traced to the policy of the Federal Reserve Board designed to restrict security speculation In the first six months of 1928 the reserve banks reduced their holdings of United States Government securities by $230,000,000 Their holdings were still further reduced by $70,000,000 in the 15 months preceding the stock-market break The board's chief influence, however, was its opposition to the rediscounting of loans on securities for the member banks and in raising the rediscount rate from 4½ per cent on June 30, 1928, to 6 per cent on September 30, 1929 The member banks were thereby caused to reduce their own holdings of United States Government and other securities by over one billion dollars The current quotations of bonds naturally fell under the influence of such wholesale liquidation

STOCK SPECULATION A CONTRIBUTING FACTOR

The continuously high levels of interest rates have attracted endless comment and discussion The nation-wide speculation in stocks has been the principal explanation assigned to them, but another influence was the extraordinary volume of domestic capital issues In this connection, the indexes of American financial conditions and of the flotation of new capital securities (both domestic and foreign) in American markets, in Tables 2 and 3 below, are illuminating

Table 2 shows that brokers' loans throughout the first three quarters of 1929 were approximately 100 per cent greater than in 1926 and 1927 Their trend had been slightly upward since the second quarter of 1926, but the pace was accelerated in the fourth quarter of 1928 and the first and third quarters of 1929 The number of shares of all kinds traded in during January–September of 1929 was 59 per cent more than for the whole of 1927, and the level of stock quotations was 67 per cent above the 1927 level The combination of increased turnover of stocks and the 67 per cent increase in price level, even though purchases were made on higher marginal requirements, necessitated larger brokers' loans The greater volume of brokers' loans, reflecting the greater demand for money to finance stock purchases, helped raise the call-loan rate to about double that ruling in 1926 and 1927 Prime bankers' 90-day acceptances, while not showing the same increase, rose sympathetically from around 3¼–3½ to 5⅛–5½ per cent.

TABLE 2 —SOME QUARTERLY INDEXES OF AMERICAN FINANCIAL CONDITIONS, 1926–1929

Period	Brokers' loans (000,000 omitted) [1]	Standard statistics security index numbers [2]		Transactions on the New York Exchange (000 omitted) [3]		Money rates in New York, per cent [4]	
		Stock prices	Bond yields	Bonds, face value	Stocks, number of shares	Call money	90 days
1926							
First quarter	$3, 015	99 8	4 64	$815, 755	129, 282	4 58	3⅝
Second quarter	2, 479	94 4	4 59	813, 447	93, 803	4 01	3¼
Third quarter	2, 703	102 4	4 60	570, 588	117, 115	4 93	3⅝
Fourth quarter	2, 670	103 4	4 57	787, 343	110, 645	4 82	3⅞
Year		100 0	4 60	2, 987, 133	450, 845		
1927							
First quarter	2, 776	107 5	4 53	971, 423	129, 786	4 15	3⅝
Second quarter	2, 971	113 6	4 48	829, 552	143, 347	4 25	3⅝
Third quarter	3, 179	122 3	4 48	680, 812	140, 014	3 82	3¼
Fourth quarter	3, 485	129 8	4 42	787, 250	103, 210	3 97	3¼
Year		118 3	4 47	3, 269, 037	516, 357		
1928							
First quarter	3, 782	134 9	4 38	833, 991	176, 415	4 32	3½
Second quarter	4, 279	147 8	4 43	1, 094, 903	228, 666	5 65	4
Third quarter	4, 296	149 7	4 57	564, 554	182, 843	6 97	4½
Fourth quarter	4, 999	167 2	4 57	409, 986	331, 738	7, 61	4½
Year		149 9	4 49	2, 903, 434	919, 662		
1929							
First quarter	5, 547	186 6	4. 65	626, 943	294, 436	8 07	5⅛
Second quarter	5, 450	188 3	4 70	667, 860	241, 436	8 69	5½
Third quarter	6, 150	216 8	4 74	766, 004	285, 719	8 73	5⅛
Fourth quarter	[5] 4, 637	172 7	4 69	1, 712, 578	303, 402	5 46	4¾
Year		191 1	4. 69	3, 773, 385	1, 124, 993		

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[1] Federal Reserve Bulletin, January, 1930, p 13 The quarterly figures are the averages of the monthly data

[2] These stock prices are the weighted average of Thursday's closing prices of 410 industrial, rail, and public-utility stocks, year 1926 taken as 100

[3] Taken from the Commercial and Financial Chronicle of the week closest to the end of the quarter

[4] Federal Reserve Bulletins The rates used here are the stock exchange new call-money rate and prime bankers' 90 day acceptances

[5] October, $6,498,000, November, $4,023,000, and December, $3,391,000

CAPITAL ISSUES IN UNITED STATES

As seen in Table 3, despite the decided slump in the volume of new capital flotations after the stock-market crashes of October and November total (domestic and foreign) capital issues in the United States were 1.6 billion dollars more than in either 1927 or 1928 and about 4.2 billions more than in 1926. Domestic capital issues, moreover, were 2.4 billion dollars greater than in 1928, 2.6 billions greater than in 1927, and 4.8 billions greater than in 1926. Finally, due to the strong preference of investors for common stocks before the stock-market collapse (rather than for fixed-income securities), the proportion of bond issues to total security issues declined from 82.3 and 82.2 per cent, respectively, in 1926 and 1927 to 63.7 per cent in 1928 and 40.3 per cent in 1929.

The offerings of new securities, therefore, were notably greater in 1929 than in any recent year. Obviously, this enlarged demand for capital strongly influenced interest rates. Since the increase was dominated by stock rather than by bond issues, however, the influence was indirect rather than direct. Many of the new stock issues found their way into margin accounts of traders and of speculators and so increased the demand for brokers' loans. Others probably were carried by investors, along with older issues, by means of direct loans from banks. Lastly, large blocks may have remained in the hands of underwriters and may have been used by the underwriters as collateral to obtain working capital. In any case, the sharp increase in brokers' loans or loans on securities during the first three quarters of 1929 resulted from new stock offerings as well as from speculation in older issues at high prices.

FOREIGN FLOTATIONS DIMINISH AS STOCK ISSUES INCREASE

High money rates did not prevent a rapid growth of total flotations (domestic and foreign) during the first nine months of 1929. They did, on the other hand, affect total bond offerings, which for the year were 1.7 billion dollars less than in 1928 and 3.5 billions less than in 1927. Since, as previously pointed out, foreign issues are primarily bond issues, their decline likewise was marked. Foreign governmental units were natually reluctant to incur the charges imposed in 1929 by high American interest rates—even though other conditions may have been favorable to the success of their issues, which in many cases they were not. Similarly, foreign corporations whose issues in past years have been principally bonds stayed out of the American market rather than borrow by means of bonds carrying either a high interest return or a nominal interest rate but salable only at a material discount. It might have been expected that foreign corporations would have taken advantage of the favorable stock-flotation conditions and disposed heavily of their equity securities here; this was prevented by the reluctance of foreign managements to see corporate control pass to another country and by the traditional unwillingness of American investors to purchase stocks of foreign corporations.

Foreigners did not even turn to the American market for refunding issues, which were, as stated earlier, less than in any other year since the close of the World War. Such issues ordinarily are floated as emergency measures when maturing indebtedness can not be met or for the conversion of existing indebtedness to better terms; cases of the former were apparently few, and conditions were not such as to permit the latter. Possibly foreign refunding under the more favorable bond-market conditions of 1926, 1927, and 1928 had so anticipated requirements that 1929 could pass by with a minimum of such transactions.

TABLE 3.—TOTAL NOMINAL VALUE OF CAPITAL ISSUES OFFERED IN THE UNITED STATES, BY QUARTERS, 1926—1929

[000 omitted]

Period	Bonds	Stocks	Per cent stocks	Domestic issues	Foreign issues	Per cent foreign
1926						
First quarter	$1,540,348	$479,183	23.7	$1,767,169	$252,362	12.5
Second quarter	1,747,648	285,353	14.0	1,689,200	343,801	16.9
Third quarter	1,281,399	195,869	13.2	1,182,978	294,290	19.9
Fourth quarter	1,543,108	357,367	18.8	1,472,373	428,102	22.5
Year	6,112,503	1,317,772	17.7	6,111,720	1,318,555	17.7
1927						
First quarter	2,049,978	502,270	19.6	2,174,860	377,388	14.8
Second quarter	2,405,341	384,734	13.8	2,373,186	416,889	14.9
Third quarter	1,385,158	341,240	19.7	1,459,786	266,612	15.4
Fourth quarter	2,319,954	545,044	19.0	2,333,291	531,707	18.5
Year	8,160,431	1,773,288	17.8	8,341,123	1,592,596	16.0
1928						
First quarter	2,082,181	532,516	20.3	2,210,946	403,751	15.4
Second quarter	2,071,402	1,057,540	33.7	2,483,758	645,184	20.6
Third quarter	804,001	455,151	36.1	1,104,323	154,829	12.3
Fourth quarter	1,407,096	1,581,958	52.9	2,704,957	284,098	9.5
Year	6,364,680	3,627,165	36.3	8,503,984	1,487,862	14.9
1929						
First quarter	1,302,149	1,826,574	58.3	2,854,558	274,165	8.7
Second quarter	1,461,623	1,660,560	53.2	2,918,013	204,170	6.5
Third quarter	870,053	2,571,981	74.7	3,361,879	80,155	2.3
Fourth quarter	1,038,941	872,294	45.6	1,763,957	147,278	7.7
Year	4,672,766	6,931,409	59.7	10,898,407	705,768	6.1

Sources: Commercial and Financial Chronicle. The bond issues are both governmental and corporate. The foreign issues are as given in this bulletin and have been subtracted from the total issues in the United States to arrive at the domestic issues.

FOREIGN OFFERINGS IN GREAT BRITAIN AND NETHERLANDS

Conditions in the United States in 1929 were reflected in two other capital-lending countries, Great Britain and the Netherlands. Interest rates there, as well as in practically every other country, rose substantially during 1929—mainly, perhaps, because of reduced capital exports from the United States, but also because of foreign participation in American speculation by actual purchase of securities here and by the loan of funds to American speculators.

In contrast to the American frenzy for new domestic issues, there was a decline in both Great Britain and the Netherlands. In the former, total issues (domestic and foreign) fell from $1,828,475,000 in 1928 to $1,247,556,000 in 1929. As will be noted in Table 4 below, the decline in foreign issues, while heavy, was not proportionate to the decline in the United States.

Capital issues (domestic and foreign) in the Netherlands in 1929 amounted to $188,000,000, compared to $269,000,000 in 1928. The heaviest decline was in foreign issues and was probably caused by the decline in German issues, which ordinarily constitute a very important part of Netherlands' foreign lending.

TABLE 4.—NET NOMINAL OF FOREIGN CAPITAL OFFERINGS IN THREE LEADING COUNTRIES, 1926–1929

[000 omitted]

Year	United States	Great Britain	Netherlands
1926	$1,134,660	$593,150	$113,200
1927	1,375,713	743,500	136,000
1928	1,250,951	767,300	123,000
1929	671,231	541,470	54,620

Sources: The figures for Great Britain were obtained from the Statist (London) of Jan. 4, 1930, p. 16, and those for the Netherlands from the Economist (London) of Jan. 25, 1930, p. 174. Conversions were made at the average yearly rates given in the Federal Reserve Bulletin of January, 1930.
The United States figures are those of the last column of Table 1.

GEOGRAPHIC DISTRIBUTION OF FOREIGN OFFERINGS

The contrast between 1929 and 1928 is brought out quite clearly by the fact that Canada obtained 43 per cent of all the capital subscribed in the United States for publicly offered foreign securities in 1929, whereas approximately the same per cent of the total was obtained by Europe in 1928. Latin America ranked second in the volume of its flotations here, as it did in 1928, although the sum involved was only about two-fifths that of 1928; Europe received less than one-fourth the capital in 1929 that it did the previous year.

A further contrast exists in the relative importance of the two main classes of borrowers. Corporate issues comprised 62 per cent of the foreign flotations here in 1929, usurping the position held by governments in 1928, but nearly half of these issues were by American corporations for their foreign activities.

The following table summarizes foreign issues publicly offered in the United States in 1929 and during the period 1914–1929, by class of security and by geographic grand division.

TABLE 5.—TOTAL PUBLICLY OFFERED FOREIGN SECURITIES (GOVERNMENTAL AND CORPORATE) PURCHASED IN THE UNITED STATES, BY CLASSES, 1929 AND 1914–1929

Class of security and geographic grand division	Number of issues	Total nominal capital	Estimated refunding to Americans	Net nominal capital
1929				
Government and Government-guaranteed issues [1]				
Europe	7	$30,470,500	$4,000,000	$26,470,500
Canada	29	159,710,600	18,486,875	141,223,725
Latin America	9	67,048,000	1,500,000	65,548,000
United States Territories and possessions	6	5,090,000		5,090,000
Total	51	262,319,100	23,986,875	238,332,225
Corporate issues				
Europe	26	115,501,681		115,501,681
Canada	49	149,019,700	550,000	148,469,700
Latin America	15	109,402,200		109,402,200
Far East	2	61,450,000	10,000,000	51,450,000
United States Territories and possessions	5	8,075,000		8,075,000
Total	97	443,448,581	10,550,000	432,898,581
Total issues				
Europe	33	145,972,181	4,000,000	141,972,181
Canada	78	308,730,300	19,036,875	289,693,425
Latin America	24	176,450,200	1,500,000	174,950,200
Far East	2	61,450,000	10,000,000	51,450,000
United States Territories and possessions	11	13,165,000		13,165,000
Total, 1929	148	705,767,681	34,536,875	671,230,806

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[1] Includes central government, provincial, and municipal issues and corporate issues officially guaranteed or controlled.

TABLE 5.—TOTAL PUBLICLY OFFERED FOREIGN SECURITIES (GOVERNMENTAL AND CORPORATE) PURCHASED IN THE UNITED STATES, BY CLASSES, 1929 AND 1914–1929—Continued

Class of security and geographic grand division	Number of issues	Total nominal capital	Estimated refunding to Americans	Net nominal capital
1914–1929				
Government and Government-guaranteed issues [1]				
Europe	250	$4,971,809,450	$487,840,145	$4,483,969,305
Canada	495	1,995,987,020	497,801,875	1,498,185,145
Latin America	200	1,964,673,750	396,750,413	1,567,923,337
Far East	28	640,397,000	71,988,500	568,408,500
United States Territories and possessions	70	101,250,000		101,250,000
Total	1,043	9,674,117,220	1,454,380,933	8,219,736,287
Corporate issues				
Europe	237	1,478,341,256	107,000,000	1,371,341,256
Canada	412	1,261,351,095	151,593,000	1,109,758,095
Latin America	177	1,076,103,299	175,883,883	900,219,416
Far East	18	272,311,680	34,000,000	238,311,680
United States Territories and possessions	41	90,788,340	19,952,000	70,836,340
Total	885	4,178,895,670	488,428,883	3,690,466,787
Total issues				
Europe	487	6,450,150,706	594,840,145	5,855,310,561
Canada	907	3,257,338,115	649,394,875	2,607,943,240
Latin America	377	3,040,777,049	572,634,296	2,468,142,753
Far East	46	912,708,680	105,988,500	806,720,180
United States Territories and possessions	111	192,038,340	19,952,000	172,086,340
Total, 1914–1929	1,928	13,853,012,890	1,942,809,816	11,910,203,074

[1] Includes central government, provincial, and municipal issues and corporate issues officially guaranteed or controlled

NOTE.—A detailed list of the 1929 offerings appears in Table 10 at the end of this bulletin

CANADIAN BORROWING HEAVIEST

In a year when the volume of borrowing by the other areas (except the noncontiguous American Territories and possessions) was about half as large, Canada increased its total susbtantially—to $309,000,000, from $237,000,000 in 1928 Government and government-guaranteed corporate issues comprised over half of the total in 1929, while in 1928 they were only one-third of the total The Canadian National Railway Co , which is controlled by the Dominion of Canada, more than doubled its issues in 1929 and took $74,000,000, or approximately 46 per cent, of the government and government-guaranteed total This capital was to be used principally for additions, betterments, and the acquisition of new lines Nevertheless, purely governmental flotations were more than double the 1928 total, they consisted of 6 provincial and 10 municipal issues for totals of $56,000,000 and $30,000,000, respectively

Canadian corporate borrowing decreased slightly in 1929 Of the total, public-utility and hydroelectric companies obtained $53,000,000, railways $49,500,000, and paper and pulp companies $34,000,000 The balance, about 10 per cent of the total, included numerous small issues of a wide variety of industries Over one-third of the corporate issues were by corporations owned in the United States

LATIN AMERICAN GOVERNMENT ISSUES DECLINE

Latin American issues in 1929 were only 40 per cent of the 1928 totals The government and government-guaranteed corporate total was a little over one-fourth that of the previous year This sudden decrease followed four years of steady increase in the public offering of Latin American governmental securities in the United States It was partially accounted for by the unfavorable condition of the money market, but in the main it was the result of adverse economic and fiscal conditions, as previously explained

There were only 7 government issues in 1929 compared with 32 in 1928, and the total was $46,500,000, compared with $320,000,000 The two government-guaranteed corporate issues were by the Mortgage Bank of Chile, $20,000,000, and the Banco Nacional de Panama, $500,000

Latin American corporate flotations totaled $109,500,000, representing a 20 per cent increase over 1928 About $60,000,000 of this was for public utilities As in other years, Latin American corporate borrowing was largely composed of issues by American corporations for use in Latin America Two corporate loans were listed as "Latin America—International" because the destination of the proceeds could not be given with any degree of accuracy, these were the preferred-stock issue of the American & Foreign Power Co (Inc) and the common-stock issue of the North-South American Corporation

CHILE LEAD IN TOTAL FLOTATIONS HERE

Chile was first in both government and corporate issues The Republic sold $8,400,000 of its 33-year 6's in the United States in March, to be used for the construction of public works The total of this issue was $10,000,000, $1,000,000 being offered in Netherlands and $600,000 in Sweden In addition, £2,000,000 was offered in London for the same purpose The Chilean consolidated municipal loan of $14,000,000 ($1,000,000 additional being sold in Netherlands) was a new departure in Latin American financing, although such joint issues were common by European municipalities This loan was participated in by 65 municipalities and was to be used for public improvements and for the funding and consolidation of outstanding obligations It "was arranged through the Ministries of the Interior and Finance of Chile and approved by the Chilean National Government " The only corporate issue was by the Lautaro Nitrate Co (Ltd), $28,000,000 being taken in the United States and $4,000,000 in Europe This company is incorporated in England for the production of nitrate in Chile The proceeds were to be used largely to construct and equip a new plant for the extraction of nitrate under the Guggenheim process

Argentina, Brazil, and Colombia were considerably below previous years in their total borrowings Several other Latin American countries offered no loans to the public at all One $10,000,000 issue of public-works serial certificates was offered by the Republic of Cuba in furtherance of the construction of the Central Highway Details of other Latin American issues appear in the schedule of issues, Table 9

EUROPEAN GOVERNMENT ISSUES ONE-TENTH OF 1928

There were only three European countries that floated government and government-guaranteed corporate issues in the United States in 1929, their aggregate—$30,500,000—was less than one-tenth the total in 1928 Corporate issues at $115,500,000 were, roughly, $135,000,000 less than in 1928 The greatest decline was in German loans, which, at $31,500,000, were $260,000,000 less than in 1928 German issues were confined to three months, January and February, before the experts on reparations met at Paris, and October Of the German issues, only about $7,000,000 was by governments and $14,000,000 by government-guaranteed or controlled corporations—the latter sum entirely for public utilities Corporate issues were relatively unimportant

A Government issue of importance was that by Rumania under the title, of "Kingdom of Rumania Monopolies Institute, Stabilization and Development Loan of 1929" According to the printed prospectus of the issue, the Monopolies Institute acquired under an exclusive concession all the monopolies now operated by the Kingdom, including the tobacco, salt, and match concessions The loan was to be offered in 11 foreign countries to a total amount of about $101,000,000, of which $5,500,000 was purchased in the United States Its purpose was fourfold—(*a*) the creation of working funds for and the discharge of floating debt of the State Treasury and the State railways, (*b*) strengthening the position of the National Bank, (*c*) improvement of the State railways, and (*d*) other productive public works

European corporate issues were of comparatively small size with the exception of those of Sweden Over $61,000,000 was obtained by Kreuger & Toll Co from three issues The proceeds from the sale of debentures in March were to be used for furthering the operations of the Swedish Match Co by purchasing from it and the International Match Corporation approximately $78,000,000 par value of securities now owned or to be presently acquired by those companies in obtaining match monopolies from various governments An issue in December was to enable the company to acquire interests in the Swedish lumber and wood-pulp industries and to cooperate further with the Swedish Match Co and International Match Corporation

FAR EAST—AMERICAN TERRITORIES AND POSSESSIONS

There were no Far East government issues floated in the United States in 1929 Because of the purchase of the public utilities of the International Settlement of Shanghai by the American and Foreign Power Co , $50,000,000 of its issue of preferred stock in March was allocated to China The only other corporate loan was one of $1,450,000 by the Toho [Japan] Electric Power Co (Ltd) to refund $10,000,000 of 6 per cent notes previously sold in this country

Government issues for the noncontiguous Territories and possessions of the United States were not large and were used for public improvements The corporate issues were small and for various industries

THE YEAR'S OFFERINGS, BY COUNTRY OF ISSUE

The following table gives the totals of the foreign capital offerings in the United States during 1929, by countries and by class of issue It shows also the total net nominal value and the net amount of discount or premium at which the issues of each country were offered to the investing public

TABLE 6.—PAR VALUE OF FOREIGN SECURITIES PUBLICLY OFFERED IN THE UNITED STATES IN 1929, BY COUNTRIES

Country of issue or destination of capital	Nominal capital			Total net nominal (less refunding)	Net discount (−) or premium (+)
	Government issues and government guaranteed corporate issues	Corporate issues	Total issues		
Europe					
International		$7,720,745	$7,720,745	$7,720,745	
Denmark	$3,575,000		3,575,000	1,575,000	−$187,687
France		200,000	200,000	200,000	
Germany	21,476,000	10,149,000	31,625,000	29,625,000	−1,984,590
Great Britain		19,060,597	19,060,597	19,060,597	−100,000
Italy		13,700,000	13,700,000	13,700,000	−511,875
Rumania	5,419,500		5,419,500	5,419,500	−650,340
Sweden		64,671,339	64,671,339	64,671,339	−522,000
Total Europe	30,470,500	115,501,681	145,972,181	141,972,181	−3,956,492
Canada	159,710,600	149,019,700	308,730,300	289,693,425	−2,066,235
Latin America					
International		59,827,200	59,827,200	59,827,200	
Argentina	1,500,000	3,185,000	4,685,000	3,185,000	−60,000
Brazil	10,898,000	5,485,000	16,383,000	16,383,000	−1,279,190
Chile	42,400,000	28,000,000	70,400,000	70,400,000	−3,266,000
Colombia	1,750,000		1,750,000	1,750,000	−122,500
Cuba	10,000,000	7,927,500	17,927,500	17,927,500	
Mexico		1,337,500	1,337,500	1,337,500	−50,000
Panama	500,000	940,000	1,440,000	1,440,000	−2,500
Venezuela		2,700,000	2,700,000	2,700,000	
Total Latin America	67,048,000	109,402,200	176,450,200	171,950,200	−4,780,190
Far East					
China		50,000,000	50,000,000	50,000,000	
Japan		11,450,000	11,450,000	1,450,000	−429,375
Total Far East		61,450,000	61,450,000	51,450,000	−429,375
United States Territories and possessions					
Alaska		5,200,000	5,200,000	5,200,000	
Hawaii	3,520,000	375,000	3,895,000	3,895,000	+72,844
Philippine Islands	500,000	2,500,000	3,000,000	3,000,000	+8,850
Porto Rico	1,070,000		1,070,000	1,070,000	+35,476
Total Territories and possessions	5,090,000	8,075,000	13,165,000	13,165,000	+117,170
Grand total offerings	262,319,100	443,448,581	705,767,681	671,230,806	−11,115,122

GOVERNMENT SECURITIES

Foreign government securities sold on the American market in 1929, exclusive of government-guaranteed corporate issues, amounted to $150,000,000 and were divided geographically as follows Canada, $86,000,000, Latin America, $46,000,000, Europe, $13,000,000, and United States Territories and possessions, $5,000,000. In 1928 the total was $643,000,000, Latin America, alone, obtaining then more than double the entire government flotations for 1929

The two German issues were by the city and the Province of Hanover for public improvements The Rumanian loan, as previously explained, was for stabilization and public improvements The purpose of Canadian loans was not specified in at least half of the cases, when stated, a fairly even division was noted between refunding and public works, especially highway construction The Latin American issues were primarily for public works

CORPORATE SECURITIES

Corporate issues, including those guaranteed or controlled by governmental units, amounted to nearly four-fifths of the total issues of 1929. In the 1928 bulletin the statement was made that the ratio of corporate to total issues was steadily increasing, and the following percentages were cited 1920–1924, 30 per cent, 1925, 40 per cent, 1926, 55 per cent, 1927, 48 per cent, and 1928, 57 per cent. The ratio for 1929, 78.7 per cent, is partially due to the peculiar conditions of the year. The long-run tendency has been for an increase in the ratio of European and Canadian corporate issues to total issues and a decrease for Latin America. The contrary was the case in Canada and Latin America in 1929, but the long-run tendency may not have been reversed.

The government guaranteed or controlled corporate issues amounted to $112,000,000, of which $74,000,000 was for Canadian railways, $20,500,000 for Latin American banking institutions, and the balance for German and Danish public-utility enterprises.

In 1929 common stock amounted to 16.9 per cent of the total foreign corporate (including government-guaranteed) issues floated in the United States, as compared with 6.2 per cent in 1928 and 8.5 per cent for the period 1914–1928. This figure can not be taken at its face value, however, inasmuch as three-fifths of the common-stock total was made up of issues by American corporations. A transaction of increased relative importance during the year was the purchase of foreign corporate stocks through right soffered to present stockholders. Such transactions will probably be more frequent in the future but can never be completely measured.

The following table shows the classes of foreign corporate securities (including government-guaranteed) publicly offered in the United States during 1914–1929.

TABLE 7.—TOTAL NOMINAL FOREIGN CORPORATE SECURITIES (INCLUDING GOVERNMENT-GUARANTEED ISSUES) PUBLICLY OFFERED IN THE UNITED STATES, 1914–1929

Year	Corporate bonds[1]	Corporate stocks		Total nominal value of corporate securities
		Preferred[2]	Common[3]	
1914	$7,928,750			$7,928,750
1915	75,699,000	$1,250,000	$750,000	77,699,000
1916	80,455,000	63,221,000	16,224,800	159,900,800
1917	108,640,000	18,992,000	14,500,000	142,132,000
1918	12,450,000	1,295,000	1,125,000	14,870,000
1919	97,080,000	14,420,000	33,635,000	145,135,000
1920	160,910,000	17,150,000	29,860,000	207,920,000
1921	157,112,249	25,000,000	9,274,500	191,386,749
1922	209,082,200	4,250,000	7,100,000	220,432,200
1923	95,935,600	38,400,000	16,424,500	150,760,100
1924	312,930,000	28,100,000	11,502,500	352,532,500
1925	460,646,650	65,065,600	11,120,000	536,832,250
1926	575,308,000	34,192,800	122,148,050	731,648,850
1927	684,862,500	23,709,000	64,708,210	773 279 710
1928				
Government-guaranteed	247,000,000	5,175,000	4,080,000	256,255,000
Private	477,650 600	62,584,200	48 645,880	588,880,680
Total	724,650,600	67,759,200	52 725,880	845,135,680
1929				
Government-guaranteed	112,373,000			112,373,000
Private	203,063,000	146,409,089	93,976,492	443,448,581
Total	315,436,000	146,409,089	93,976,492	555,821,581
Total, 1914–1929	4,079 126,549	549,213,689	485,074,932	5,113,415,170

[1] Nominal (face) value

[2] Nominal (face) value except when sold in units with common stock

[3] Selling price

CLASSES OF INDUSTRIES FINANCED

The leading industries financed in 1929 were public utilities, railways, matches, banking and credit, paper, and mining. The railway and paper issues were entirely Canadian, the banking and credit and mining issues chiefly Latin American. The public-utility issues were more widely distributed.

These industries may be classified in order of volume as follows: (1) Service enterprises, including public utilities, transportation and communication companies, and financial institutions, (2) manufacturing enterprises, (3) primary enterprises, including mining, petroleum, lumbering, and fishing companies, and (4) commercial and miscellaneous enterprises. The amounts obtained by each through capital issues in the United States during 1929 were: Service, $369,000,000, manufacturing, $129,000,000, primary, $41,000,000, and commercial and miscellaneous, $17,000,000.

The following table indicates the extent and proportion of diversification by industries in 1929 and 1914–1929.

TABLE 8.—TOTAL NOMINAL VALUE OF PUBLICLY OFFERED FOREIGN SECURITIES (INCLUDING GOVERNMENT-GUARANTEED ISSUES) PURCHASED IN THE UNITED STATES, BY INDUSTRIES, 1929 AND 1914–1929

Industry	1929	1914–1929
Public utilities	$206,305,550	$1,206,960,250
Railways	123,456,000	901,287,750
Banking and credit companies	33,872,500	700,639,075
Paper companies	33,805,000	476,807,450
Sugar companies	-------	349,673,990
Mining companies	32,774,000	294,699,500
Petroleum companies	3,557,500	189,082,245
Iron and steel companies	10,493,000	163,213,000
Match companies	61,238,339	160,413,689
Steamship companies	5,000,000	103,170,000
Chemicals	8,919,092	82,348,592
Electrical equipment and machinery	10,000	65,010,000
Industrial machinery	-------	63,340,000
Miscellaneous manufacturing	10,018,750	34,446,750
Textile companies	900,000	31,200,400
Harbors and docks	-------	28,225,000
Automobile companies	100,000	22,550,000
Department stores	380,000	21,583,750
Tobacco companies	146,000	20 219,650
Churches	2,500,000	18,900,000
Rubber companies	3,000,000	16,800,000
Chain stores	1,075,000	16,416,600
Fruit companies	-------	15,092,500
Hotel companies	7,450,000	13,740,000
Cable companies	270,000	12,827,000
Lumber companies	250,000	11,697,249
Dairy companies	-------	10,860,000
Motion pictures	313,650	6,454,650
Schools	-------	5,060,000
Realty companies	490,000	4,610,000
Fishing	4,265,000	4,265,000
Cement companies	-------	4,000,000
Amusement companies	-------	3,750,000
Grain and elevator companies	77,200	2,547,200
Trading companies	25,000	2,611,880
Glass industry	-------	1,500,000
Aviation industries	375,000	1,375,000
Miscellaneous	4,755,000	46,037,000
Total securities	555,821,581	5,113,415,170

INTERNATIONAL RAMIFICATIONS OF BUSINESS

The above compilation for 1929 includes the issues of 21 companies which are either incorporated in the United States or controlled by companies so incorporated They floated bond and stock issues in 1929 totaling about $204,000,000 The fields covered by these companies include public utilities in Canada, Europe, Latin America, and the Far East, chemicals in Europe and Argentina, merchandising in Canada, petroleum in Mexico and Venezuela, and a hotel in Cuba

Below is a list of these 21 corporations The details of their issues will be found in Table 9

Crown Cork International Corporation (Europe)
Coty (Inc) (Europe)
Utilities Power & Light Corporation (England)
Italian Superpower Corporation of Delaware (Italy)
International Power & Paper Co (Canada)
North American Gas & Electric Co (Canada)
International Hydro-Electric System (Canada)
International Milling Co (Canada)
Oneida Community (Ltd) (Canada)
Metropolitan Chain Properties (Ltd) (Canada)
Toronto Chain Stores Terminals (Canada)
American & Foreign Power Co (Latin America and China)
North & South American Corporation (Latin America)
Intercontinents Power Co (Argentina and Brazil)
Consolidated Chemical Industries (Inc) (Argentina)
The National Hotel of Cuba (Cuba)
Ammex Petroleum Corporation (Mexico)
El Paso Electric Co of Texas (Mexico
National Venezuela Oil Corporation (Venezuela)
Alaska-Pacific Salmon Corporation (Alaska)
Alaska Public Service Corporation (Alaska)

TABLE 9 —FOREIGN CAPITAL ISSUES PUBLICLY OFFERED IN THE UNITED STATES DURING THE CALENDAR YEAR 1929

GOVERNMENT AND GOVERNMENT-GUARANTEED ISSUES[1]

Issuer and class of security	Month when first offered	Total of issue if partly taken abroad	Par value of flotation in United States	Estimated portion for refunding to Americans	Interest	Term	Approximate price to public	Approximate yield to maturity
EUROPE								
		Dollars	*Dollars*	*Dollars*	*Per cent*	*Years*		*Per cent*
Denmark								
Copenhagen Telephone Co , external S F G B[1a]	February	7,000,000	3,575,000	2,000,000	5	25	94 75	5 38
Germany								
Province of Hanover, Harz waterworks loan, second series	January	4,000,000	3,725,000		6½	20	94 50	7 00
Berlin City Electric Co , sinking fund debentures	February	15,000,000	9,651,000	2,000,000	6½	30	93 50	7 02
Prussian Electric Co , S F G debentures	do		4,000,000		6	25	91 00	6 75
Unterelbe Power & Light Co , gold notes represented by American participation certificates	do		600,000		6	2	99 00	6 50
City of Hanover, external convertible gold bonds	October		3,500,000		7	10	98 00	7 30
Rumania								
Kingdom of Rumania Monopolies Institute, guaranteed external S F G B , stabilization and development loan of 1929	February[2]		5,419,500		7	30	88 00	8 07
Total, Europe			30,470,500	4,000,000				
CANADA								
Province of British Columbia, sinking fund debentures	January	6,417,000	3,824,000	4,000,000	4½	40	94 69	4 80
Greater Winnipeg water district, gold bonds	February	1 750,000	625,000	1,750,000	5	30	101 56	4 90
City of Quebec, bonds	do	1,749,000	1,500,000		5	30	102 00	4 85
York Township, bonds	March	1,447,638	334,000		5	18	99 00	5 25
City of Saskatoon	April	569,300	200,000		4½–5	10–30	88 00–96 00	5 30–5 00
Province of British Columbia, S F G debentures	do	6,056,000	2,689,000		5	25	100 00	5 00
Same	May	4,000,000	2,000,000		5	25	100 00	5 00
Canadian National Railways, equipment trust certificates, series K, 1929	do	18,000,000	7,768,000		5	1–15	99 36–99 75	5 10–5 75
City of Edmonton, bonds	do	649,358	325,000		5	25	98 66	5 20
Province of Nova Scotia, bonds	do	2,560,000	700 000		5	30	100 00	5 00
Province of Ontario, provincial coupon bonds	do	35,000,000	19,900,000		5	30	100 00	5 00
City of *Toronto*, serial bonds	do	10,274,000	3,504,000		5	1–30	98 75–100 00	5 00–5 15
Canadian National Ry Co , guaranteed gold bonds	June	60,000,000	26,002,000		5	40	99 75	5+
Province of Manitoba, gold bonds	do	2,526,000	2,000,000		5	25	99 75	5+
Montreal Metropolitan Commission, gold bonds	do	3,100,000	2,052,000		5	37	99 75	5+
City of Quebec, S F G B	do	3,524,000	2,290,600		5	30	99 75	5+
Province of British Columbia, bonds	September	3,036,500	900,000	500,000	5	30	100 00	5 00
Canadian *National* Ry Co , guaranteed gold bonds	October	30,000,000	20,277,000		5	40	98 50	5 15
Province of Saskatchewan, noncallable debentures	do	2,000,000	1,170,000		5	30	99 75	5+

Province of Alberta, gold bonds	November	2,500,000	650,000		5	30	99 75	5+
Canadian National Ry, Co, guaranteed gold bonds	do	25,000,000	20,000,000		5	40	98 50	5 15
The Harbour Commissioners of Montreal, first-mortgage gold bonds	do	18,500,000	11,000,000		5	40	99 50	5 00
Province of British Columbia, treasury bills	December		3,000,000	1,736,875	5½	1	100 00	5 50
Same	do		3,000,000	3,000,000	5½	2	100 00	5 50
Province of Manitoba, gold bonds	do	3,495,000	800 000		5	30	100 00	5 00
City of Montreal, gold bonds	do	14,000,000	5,000,000		4½	20	94 00	5+
Same	do	4,300,000	2,300,000		4½	40	92 50	5 00
Province of Ontario, gold bonds	do	30,000,000	15,000,000	7,500,000	5	31	101 50	4 90
City of Ottawa, bonds	do	1,604,161	900,000		4½	1–30	95+ 99 39	5+ 5 20
Total, Canada			159,710,600	18,486,875				
LATIN AMERICA								
Argentina								
Province of Santa Fe, treasury gold notes [3]	November		1,500,000	1,500,000	6	1	100 00	6
Brazil								
State of Rio de Janeiro, external secured S F G B of 1929	June	6,000,000	4,390,000		6½	30	91 50	7 20
State of Minas Geraes, secured external gold loan of 1929, series A	September	8,000,000	6,508,000		6½	30	87 00	7 60
Chile								
Republic of Chile, external loan S F G B	March	10,000,000	8,400,000		6	33	93 50	6 48
Mortgage Bank of Chile, guaranteed S F G B of 1929	June		20,000,000		6	33	92 00	6 60
Chilean consolidated municipal loan, external S F G B, series A, 1929	August	15,000,000	14,000,000		7	31	94.00	7 50
Colombia								
Department of Antioquia, external S F G B, series D	January		1,750,000		7	20	93 00	7 75
Cuba								
Republic of Cuba, public works serial certificates	do		10,000,000		5½	3½–4½	100 00	5 50
Panama								
Banco Nacional de Panama, guaranteed gold bonds, series D	February	1,000,000	500,000		6½	20	99 50	6 65
Total, Latin America			67,048,000	1,500,000				
UNITED STATES TERRITORIES AND POSSESSIONS								
Hawaii								
Territory of Hawaii, public improvement gold bonds	February		1,175,000		4¼	5–29	100 40–101 70	4.15
County of Hawaii, gold bonds	October		400,000		5	5–24	101 55–105 61	4.50
Territory of Hawaii, gold bonds	November		1,945,000		4¾	5–30	100 00–104 82	4 40–4.75
Philippine Islands								
City of Manila, gold bonds, first series, public improvement loan of 1929	June		500,000		4½	30	101 77	4 40
Porto Rico								
The People of Porto Rico, gold loan of 1929	January		320,000		4½	25	102 43	4 30
The People of Porto Rico, gold bonds	December		750,000		4½	23–41	102 93–104 44	4 25
Total, Territories and possessions			5,090,000					

Footnotes at end of table

TABLE 9 —FOREIGN CAPITAL ISSUES PUBLICLY OFFERED IN THE UNITED STATES DURING THE CALENDAR YEAR 1929—Continued

CORPORATE ISSUES

Issuer and class of security	Month when first offered	Total of issue if partly taken abroad	Par value of flotation in United States	Estimated portion for refunding to Americans	Interest	Term	Approximate price to public	Approximate yield to maturity
EUROPE		Dollars	Dollars	Dollars	Per cent	Years		Per cent
International								
Crown Cork International Corp , class A	April		3 052, 500		(4)		$16 50	
Coty (Inc)	September		4, 668, 245		(4)	(5)	$45 00	
France								
Foreign Power Securities Corp (Ltd), first collateral trust convertible bonds [6]	June	5, 000, 000	200, 000		6	20	100 00	6 00
Germany								
"Gesfurel" Gesellschaft fur elektrische Unternehmungen (par $25)	January		435, 000		(4)	(5)	$58 50	
Leonhard Tietz Aktien-Gesellschaft	do		150, 000		(4)	(5)	$26 00	
J P Bemberg A G of Bremen (par $50)	February		900, 000		(4)	(5)	$80 00	
Harpen Mining Corp , gold mortgage bonds, series of 1929 [7]	do	10, 000, 000	3, 664, 000		6	20	90 00	6 93
"Hansa" Steamship Line, G B	October		5, 000, 000		6	10	93 00	6 98
Great Britain								
Imperial Chemical Industries (Ltd) (par $4 86)	January		517, 500		(8)		$11 25	
The Decca Record Co (Ltd)	February	4, 875, 000	243, 750		(4)		$4 87	
Utilities Power & Light Corp , gold debentures [7] [9]	do		5, 000, 000		5	30	98 00	
Cables and Wireless (Ltd)	April		270, 000		(4)		$4 86	
British Power & Light Corp	May	7, 776, 000	550, 000		(4)		$4 86	
Pinchin, Johnson & Co (Ltd) (par $7 30)	do		2, 833, 347		(8)		$42 50	
Columbia Graphophone Co (Ltd) (par $2 43)	July		9, 500, 000		(8)		$24 23	
British-American Tobacco Co (Ltd)	September		146 000		6	(10)	4 86	
Italy								
Pirelli Co of Italy (par $26)	January		3, 000, 000		(8)		$60 00	
Ernesto Breda Co , first-mortgage S F G B [7]	February	5, 000, 000	4, 050, 000		7	25	96 25	7 40
United Electric Service Co of Italy (par $7 87)	March		2, 350, 000		(8)		$23 50	
Isotta Fraschini	April		100, 000		(4)	(5)	$10 92	
United Electric Service Co of Italy (par $2 62)	May		200, 000		(4)	(5)	$5 24	
Italian Superpower Corporation of Delaware, gold debentures, series "A," 1929 [7]	July		4, 000, 000		6	35	91 00	6 65
Sweden								
Kreuger & Toll Co [7]	March		11, 000, 000		(8)		$32. 16	
Same, secured S F G debentures	do	50, 000, 000	26, 100, 000		5	30	98 00	5 12
Swedish Ball Bearing Co (par $26 80)	July		3, 433, 000		(8)		$68 66	
Kreuger & Toll Co [7]	December		24, 138, 339		(8)		$23 00	
Total, Europe			115, 501, 681					

CANADA								
Budweiser Brewing Co of Canada (Ltd)	January	125, 000	75, 000			(11)	$125 00	
Canada Paving & Supply Corporation (Ltd) (bonus of 3 common to 10 preferred shares)	do	2, 000, 000	25, 000		7	(10)	$100 00	
Canadian Power & Paper Investments (Ltd)	do	2, 500, 000	10, 350		5	(10)	$50 00	
Dominion Tar & Chemical Co (Ltd), S F G debentures, series A [7]	do	4, 000, 000	400, 000		6	20	100 00	6 00
Same (bonus of 5 common with 10 preferred shares)	do	4, 500, 000	300 000		6½	(10)	$100 00	
International Power & Paper Co class C common stock	do	15, 000, 000	12, 000, 000		(4)		$10 00	
Montreal Tramways Co general and refunding mortgage S F G B , series C	do	2, 500, 000	250, 000		4½	27	90 50	5 15
Wood & English (Ltd), collateral trust gold notes	do		250, 000		6	1-2-3	100 00	6 00
Canadian International Investment Trust (Ltd)	February	2, 700, 000	151, 500		(12)		$135 00	
Canadian Investors Corporation (Ltd)	do	2, 120, 000	106, 000		(4)		$26 50	
Consolidated Investment Corporation of Canada, first collateral trust gold bonds, series A [7]	do	15, 000, 000	1, 500, 000		4½	30	100 00	4 50
Dryden Paper Co (Ltd), first mortgage S F G B	do	1, 500, 000	60, 000		6	20	100 00	6 00
Medical and Dental Building (Vancouver, British Columbia) first closed-mortgage S F G B	do	1, 000, 000	490, 000		6	15	99 00	6 10
Metal and Mining Shares (Inc)	do	7, 400, 000	1, 000, 000		(13)		$74 00	
North American Gas & Electric Co , gold debentures, series due 1944 [7]	do		[14] 300, 000		6	15	98 50	6 25
Same, class A stock	do		[14] 237, 000				$24 50	
United Securities (Ltd), collateral trust S F G B , series B	do	1, 600, 000	225, 000		5½	24	100 50	5 45
Bell Telephone Co of Canada, first-mortgage G B , series B	March	15 000 000	7, 500, 000		5	30	100 00	5 00
Dominion Stores	do	907, 500	225, 000		(4)	(5)	$5 00	
Duffering Paving & Crushed Stone (Ltd) (bonus 3 common to 10 preferred)	do	2, 000, 000	25, 000		(10)		$100 00	
Famous Players Canadian Corporation (Ltd), voting trust certificates for common shares	do	8, 434, 125	313, 650				$51 00	
Great Britain & Canada Investment Corporation, convertible debentures [7]	do	6, 000, 000	1, 450, 000		4½	30	100 00	100 00
International Hydro-Electric System, convertible gold debentures	do		13, 000, 000		6	15	100 00	100 00
Power Corporation of Canada (Ltd), convertible debentures	do	10, 000, 000	2, 500, 000		4½	30	100 00	4 50
Shawinigan Water & Power Co	do	15, 558, 900	[15] 6, 000, 000		(4)	(5)	$50 00	
Same, first mortgage and collateral trust S F G B	do	6, 000, 000	4, 000, 000		4½	40	93 00	4 90
Amalgamated Electric Corporation (Ltd)	April	1, 000, 000	10, 000		6	(10)	$50 00	
Canada Wire & Cable Co (Ltd)	do	3, 000, 000	10, 000		6½	(7,10)	$100 00	
International Hydro Electric System	do		[16] 5, 000, 000		(4)	(5)	$43 00	
International Milling Co [17]	do	1, 000, 000	77, 200		6	(10)	$98 00	
Anglo-Norwegian Holdings (Ltd)	May	1, 090, 000	315, 000		(4)		$4 50	
Canadian Pacific Ry Co (par $100)	do	51 000, 000	12, 750, 000		(4)	(5)	$170 00	
Canadian Mining Securities Corporation (par $10)	June	1, 925, 000	110, 000		(4)		$11 00	
Canadian Pacific Ry , equipment trust gold certificates	do	30, 000, 000	21, 659, 000		5	15	99 50	5 05
National Distillers (Ltd)	do	2, 000, 000	200, 000		(4)		$50 00	
Oneida Community (Ltd) [18]	do		1, 000, 000		(4) (5)			
Same, S F G notes [18]	do		2, 000, 000		6½	10	100 00	6 50
Simpsons (Ltd), first collateral trust S F G B , series A	do	10, 000, 000	200, 000	550, 000	6	30	100 00	6 00
West Canadian Hydro-Electric Corporation (Ltd), gold debentures	do		650, 000		5	1		
Canadian International Paper Co , first-mortgage gold bonds	July	25, 000, 000	21, 745, 000		6	20	95 00	6 45
Simpsons (Ltd)	do	10, 000, 000	30, 000		6½	(10)	$100 00	
Bell Telephone Co of Canada (Ltd) (par $100)	August		5, 000, 000		(4) (5)		$125 00	
Canadian American Public Service Corporation, collateral gold notes	September		600, 000		6	1	99 00	7 12

Footnotes at end of table

Table 9.—Foreign Capital Issues Publicly Offered in the United States during the Calendar Year 1929—Continued

CORPORATE ISSUES—Continued

Issuer and class of security	Month when first offered	Total of issue if partly taken abroad	Par value of flotation in United States	Estimated portion for refunding to Americans	Interest	Term	Approximate price to public	Approximate yield to maturity
CANADA—continued		Dollars	Dollars	Dollars	Per cent	Years		Per cent
Canadian Resort Hotels (Inc.)	October	2,400,000	1,200,000		6½	(13)	$12.00	
Gatineau Power Co., first-mortgage gold bonds	do	11,000,000	7,700,000		5	30	93.00	5.50
McCall-Frontenac Oil Co. (Ltd.), first-mortgage and collateral trust convertible bonds	do	7,500,000	520,000		6	20	100.00	6.00
Metropolitan Chain Properties (Ltd.), first-mortgage convertible S. F. G. B.	do	3,000,000	400,000		6	20	99.75	6.03
Toronto Chain Stores Terminals, first mortgage collateral trust S. F. G. B.[7]	do		450,000		6	10	100.00	6.00
Canadian Pacific Ry. Co., collateral trust gold bonds	December	30,000,000	15,000,000		5	25	100.00	5.00
Total, Canada			149,019,700	550,000				
LATIN AMERICA								
International								
American & Foreign Power Co. (Inc.)[10] [19]	March		50,827,200		7	(6) (10)	100.00	
North-South American Corporation	May		9,000,000		(4)		$36.00	
Argentina								
Consolidated Chemical Industries (Inc.)	January		[20] 200,000		(10)		$25.00	
Intercontinents Power Co.[7] [21] (Par $100)	do		1,485,000		7	(10)	$99.00	
Same, debentures, series A[21]	July		1,500,000		6	20	96.00	6.35
Brazil								
Intercontinents Power Co.	May		2,500,000		(4)		$25.00	
Same[7]	June		1,485,000		7	(10)	$99.00	
Same, debentures, series A[21]	July		1,500,000		6	20	96.00	6.35
Chile								
Lautaro Nitrate Co. (Ltd.), first-mortgage convertible gold bonds[7]	June	32,000,000	28,000,000		6	25	99.00	6.15
Cuba								
The National Hotel of Cuba, income debentures and common stock	August		6,250,000		6	30	100.00	6.00
Havana Lithographing Co.	October		1,677,500		7	(22)	$110.00	
Mexico								
Ammex Petroleum Corporation (par $5)	June		337,500		(4)		$4.50	
El Paso Electric Co. (Texas), first-mortgage gold bonds, series A, issue of 1925	do		1,000,000		5	25	95.00	5.40
Panama								
Fideicomico Panama-Americana	May		940,000		(4)		$23.50	
Venezuela								
National Venezuela Oil Corporation (par $5)	June		2,700,000		(4)		$3.00	
Total, Latin America			109,402,200					

FAR EAST								
China								
American and Foreign Power Co (Inc)[7] [19]	March		50,000,000		(7)	(5)(10)	$100 00	
Japan								
Toho Electric Power Co (Ltd)	June		11,450,000	10,000,000	6	3	96 25	7 40
Total, Far East			61,450,000	10,000,000				
UNITED STATES TERRITORIES AND POSSESSIONS								
Alaska								
Alaska Pacific Salmon Corporation	February		3,250 000		(10)		$50 00	
Same	do		700,000		(4)		$20 00	
Alaska Public Service	April		1,250,000		(4)		$25 00	
Hawaii								
Hawaiian Airways (Ltd)	September		375,000		(4)		$10 00	
Philippine Islands								
Roman Catholic Archbishop of Manila, direct obligation gold notes	February		2,500,000		6	3	100 00	6 00
Total, United States Territories and possessions			8,075,000					

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[1] Governmental, provincial, and municipal issues and corporate issues officially guaranteed or controlled

[1a] Abbreviation for "sinking fund gold bonds"

[2] The total of this loan was $101,000,000 It was issued in pounds sterling francs, and dollars and sold in Austria, Belgium Czechoslovakia, France, Germany, Great Britain, Italy, Netherlands, Rumania, Sweden, Switzerland and the United States The American share of $12,000,000 was to have been taken in Sweden to the amount of $2,000,000

[3] This issue, dated Mar 15, 1929, was first advertised in November in the amount of $4,000,000 It refunds one year Treasury notes issued in the United States in May, 1927, which were renewed in 1928

[4] Common stock

[5] Offered to stockholders

[6] This company is incorporated in Canada and has extensive hydroelectric and public utility holdings in France and the French colony of Madagascar

[7] Stock purchase rights attached

[8] American shares or depositary receipts for common stock or participating debentures

[9] Estimated portion of the $30,000,000 issue of this American corporation used in England

[10] Preferred stock

[11] Units of one 7 per cent preferred and five common shares

[12] Units of one preferred and three common shares

[13] Units of one share each of preferred and common stock

[14] This is an American corporation organized to operate public-utility properties in the United States and Canada The portion of these issues of debentures and class A stock applicable to Canadian enterprise has been estimated on the basis of the proportion the Canadian assets bear to the whole

[15] Estimated as the amount purchased by stockholders in the United States

[16] Estimated amount of a $11,000,000 issue to be used in Canada by this American corporation

[17] An American corporation with properties in Canada

[18] Offered to pay in part for the purchase of Canadian Wm A Rogers (Ltd)

[19] One issue by this American corporation totaled $100,827,200 Part of the issue was allocated to China because of the purchase of the public utility properties of the International Settlement of Shanghai The balance of the issue was allocated to Latin America (International) because the major holdings of the company are in Latin American countries

[20] Estimated portion of a $2,000,000 issue used by the company in its foreign activities

[21] An American corporation which is extending its public utility holdings in Argentina and other Latin American countries

[22] Units of two shares each of preferred and common stock

U. S. DEPARTMENT OF COMMERCE
R P LAMONT, Secretary
BUREAU OF FOREIGN AND DOMESTIC COMMERCE
WILLIAM L COOPER, Director

THE
MOTORIZATION OF NORTH AFRICA

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The value of American automotive products exported to North Africa during 1929 reached a total of $1,964,706, compared with a 1928 total of $1,059,151, an increase of 85 per cent Moreover, the increase has been steady since 1925, when the figure was $596,162 Morocco took about three-fourths of the exports to North Africa during 1929, and it is noteworthy that while its passenger-car imports increased about 25 per cent in number, the increase in value was 250 per cent, indicating sales of higher priced cars

The need of North Africa for motor transportation is pronounced Its railways are few and inadequate, in fact, many large sections have no means of communication except the motor vehicle or the traditional donkey and camel The automobile is credited with doing more for the development of the area than any other agency A fairly good network of highways now exists in each of the countries (there is a regular bus route across the Sahara), except in Tunisia, where roads are somewhat fewer and of a comparatively inferior quality Plans have been made to improve and add to those already existing

There are, naturally, many vital problems incident to the growth of the automotive market in North Africa, such as distribution systems, agencies, financing, and particularly servicing These and many other questions, as well as pertinent basic economic data are dealt with in this report, which will undoubtedly be of great interest and benefit to American exporters of automotive products

Grateful acknowledgment is made of the assistance of the United States consular officers at Casablanca, Tangier, Algiers, and Tunis in obtaining material for this report

WILLIAM L COOPER, *Director*,
Bureau of Foreign and Domestic Commerce

APRIL, 1930.

THE MOTORIZATION OF NORTH AFRICA

By H C Schuette, American Trade Commissioner

THE TERRITORY AS A WHOLE

The vast territory extending from the Atlantic Ocean to the Italian colony of Libya and from the Mediterranean to the Sahara is commonly referred to as North Africa It embraces the countries of Morocco, Algeria, and Tunisia, having a combined area of more than 500,000 square miles This district, more than one-sixth the size of the United States, has a total population of approximately 13,000,000, with not more than 67,000 automobiles in circulation to serve the constantly growing need for motorized transportation

Although a large share of the population can be dismissed from consideration as potential owners of motor vehicles for years to come, there are still several million people whose need for transportation facilities is far greater than the need of an equal number of people elsewhere, for in many sections of North Africa, particularly in Morocco, railways are totally inadequate or even nonexistant, and all communication in these sections must be by passenger car, truck, bus, or motor cycle, or by the slower donkey or camel

The mixture of Berber races that inhabited this country for several thousand years came under the dominating influence of the invading Arab hordes in the eighth and ninth centuries, and from that day to this Islamic customs and religion have been the outstanding characteristics of the social, political, and economic structure of the people The capture of Algiers on July 5, 1830, by the French put an end to four centuries of Barbary piracy and marked the beginning of European influence Gradually all of Algeria and Tunisia came under French control, but it was not until the early part of the twentieth century that Morocco came under the same influence In fact, not until the end of the World War did European civilization begin to make appreciable inroads upon Moroccan economic and social life, yet in the short space of the last 12 years this development has been very rapid, and the large-scale construction of badly needed roads, railways, and other public improvements has had a great effect in raising the standard of living

With the opening of the territory to Europeans, large numbers of French and, to a smaller extent, Spanish and Italian immigrants and capital poured into North Africa to take advantage of the possibilities of a new country A number of steamship companies and tourist agencies were not slow to capitalize the climatic advantages and the many picturesque cities of the country, and North Africa is becoming an increasingly popular winter resort for Europeans and Americans alike

MARKETING AUTOMOBILES IN NORTH AFRICA

In a study of the automotive market of North Africa, there are few generalities that are applicable to the whole territory, and each country must be analyzed individually. Nevertheless, there are some points that are common to all three markets and other points that are common to Algeria and Tunisia only. In the matter of duty, for example, both Algeria and Tunisia impose a tariff of 45 per cent ad valorem on motor vehicles, except French, which are free of duty. This is in sharp contrast to Morocco, where there is a uniform rate of 12½ per cent ad valorem for all countries, including France.

For more reasons than one, Morocco should not be grouped with Algeria or Tunisia. It has different customs and different customer prejudices, even among Europeans living there, inasmuch as they are in the habit of buying from all countries because of the equality of treatment. Although French goods often enjoy a sentimental preference on the Moroccan market among the European population, the bulk of which is French, it may be noted that after a short residence in this country the immigrant becomes more Moroccan than French. This is especially true in so far as his purse is concerned, and he is less likely to be prejudiced against the goods of foreign manufacture and does not hesitate to purchase in the cheapest market irrespective of nationality. On the other hand, the largest general importers are French, many are capitalized in France and have their head offices in that country.

In many cases agencies for American cars for Morocco, Algeria, and Tunisia, or all three, have been given to firms located in Paris which operate in the territory through a subdealer not in direct touch with the American firm. This is not conducive to a satisfactory sales volume, and the practice usually results in difficulties of varying nature. It is equally impossible for a dealer in Algiers or Casablanca, for example, to act effectively as the distributor for all three, or even two, of these countries, in other words, a separate distributor should be appointed for each territory.

American manufacturers, in setting down hard and fast rules from which they will not deviate, often do not realize the difficulties of the distributor, and if they were better informed as to the commercial and sales problems of their dealers the situation would be helped considerably.

Many American cars are shipped to Algiers from Marseille, but this should not be done in the case of Tunisia because of possible tariff difficulty, for an American car, having paid the duty in France, may be assessed again upon entering Tunisia, inasmuch as the latter country has the status of a protectorate. Although usually conforming to French procedure, it may levy its duty upon the entry of the product into the country unless accompanied by a French certificate of origin, irrespective of the fact that the foreign commodity imported may already have paid the French duty.

There are no real dealers' organizations in North Africa. Each of the territories has its "chambre syndicale," or chamber of commerce, but these associations are general in character and interest themselves in all branches of business. In practice the automotive sections of the chambres syndicales are inactive. The only example of a separate dealers' organization successful in definite results is in the case of Algeria, where various dealers formed a separate company to handle used cars A more detailed discussion of how this plan operates is contained in the section on Algeria

The monetary standard of French Morocco is the Moroccan franc, that of Algeria and Tunisia is the Algerian franc Both of these currencies are on a par with the French franc (about 25 4 to the dollar) In Spanish Morocco, the Spanish peseta (about 7 7 to the dollar at present rates of exchange) is legal tender, while in Tangier both the Spanish peseta and the Moroccan franc are common currency

MOROCCO

Covering an area of approximately 250,000 square miles, or somewhat larger than the State of Texas, the Shereefian Empire, as Morocco is sometimes called, is divided into three zones The French protectorate, a much smaller Spanish protectorate in the north, and the international zone consisting of the city of Tangier and a small strip of territory surrounding it

The population of Morocco may be considered under three headings—Mohammedans, Jews, and Europeans About six-sevenths of the entire population consists of the native Moors, a mixed Arab and Berber race Morocco has been called the "Far West of the Near East," and the Moslem faith colors the social life of the people to a greater extent than perhaps any other Mohammedan people

Most of the inhabitants are engaged in agriculture and stock raising, and the trade of the country is almost entirely in the hands of the Jews and Europeans

The climate consists of a hot summer and a short, rainy winter season Temperatures on the coast range from 50° to 60° F in winter and from 68° to 80° F in summer More extreme temperatures are found in the interior The mean winter temperature is about 56° The rainy season is from October to April, but the rainfall is exceedingly variable from section to section and from year to year Irrigation is necessary in large areas of the country Morocco can be compared to California as to climate and even topography Like California, it has a long coast line, backed by mountains, and a desert to the east

Arabic is the language of most of the natives, but French is understood by the more educated natives in French Morocco and serves as the common political and commercial language of that protectorate The commercial language of Spanish Morocco and Tangier is Spanish, although in the international zone French and English are also in wide use

Morocco is one of the few countries left in the world where the practice of extraterritoriality still obtains The Sultan of Morocco rules his 5,000,000 subjects as nominal head, and the country has its own currency, laws, and fiscal system

The Act of Algeciras, to which the United States was a signatory, grants equality to all nations trading with Morocco, including Government contracts, and this circumstance makes the Moroccan market more favorable toward American products than the markets of Algeria and Tunisia The treaty provides a 12½ per cent import duty to be levied on all goods entering Morocco, irrespective of nationality

As a treaty privilege, the American consular courts at Casablanca and Tangier have complete jurisdiction over American concerns and individuals when they are defendants in civil or criminal cases In other words, they are exempt from local legislation except for such laws as are approved by the United States Department of State, the laws of the District of Columbia holding in all other cases Among the special privileges enjoyed by American commerce is the so-called "régime of protected persons," which means that an American firm doing business on a large scale in Morocco is entitled to designate native agents (either Moslems or Jews) in each major center of business These agents, called semsars, are also under the jurisdiction of American consular courts when defendants in civil or criminal cases, thus giving them practically the same privileges as American citizens in Morocco

FRENCH MOROCCO

The French protectorate of Morocco includes the northwest corner of Africa lying between the Rif and the high Atlas Mountains Of the three zones that make up the Sultan's territories, the French protectorate is by far the largest and the most important from an economic standpoint, and has 15,500 of the estimated 17,000 cars in Morocco

The richest districts of French Morocco include the western port cities and the interior as far as Fez and Marrakech Southeast of the Atlas Mountains and running almost from the Mediterranean to the indefinite southern boundary of French Morocco lies the interior, made up in the north of shelving plateaus and blending in the south with the Sahara The desert hinterland is sparsely populated with nomadic tribes and is of little economic importance at present

Population and standard of living —According to the census of 1926, the population of French Morocco was 4,216,824, of which 4,005,916 were Moors (Moslems), 107,512 were Jews, and 103,396 were Europeans, chiefly French, Italian, Spanish, Portuguese, and English The American population is less than 75

The native Mohammedans are primarily agricultural people, and less than 500,000 live in European centers The remainder are to be found in the rural, pastoral, and mountain districts, almost half in seminomadic residence

The Jewish population is becoming more and more Europeanized, and the 40 per cent that may now be considered as being Europeanized constitute an important consuming population Of the 107,000 Jews in Morocco, some 80,000 are resident in urban centers, and a large fraction of the remainder constitute the small-village merchant group Among the slightly more than 100,000 Europeans, from 60,000 to 65,000 are French, the Spanish forming the largest proportion of the balance All but 6,000 of the Europeans are resident in the more important cities

Among the natives the standard of living is very low, and wages are much lower than in Europe The exception is the small number of sheiks, or caids, who are the aristocrats of the country and who can, in general, be considered wealthy This latter class has so far been practically the only car buyers of the native element

Generally speaking, the natives subsist largely on the products of the country and demand comparatively few imported articles, luxury, in the American and European sense, is practically unknown among them The standard of living among the better-class Jews and Europeans closely approximates that of France

Ordinary indexes for determining purchasing power, at least in the automobile market, are not applicable to Morocco The motor vehicle has never been considered in this country as anything else but a necessity, because of the vital need of efficient, modernized transportation

Industries and occupations —Aside from the predominating importance of agricultural pursuits, the production of cork and forest gums and the mining of phosphates constitute the most important industrial activities The fishing off the coasts is fairly important, and there is a considerable domestic production of wool and silk goods, leather articles, embroidery, crude pottery, and brass and copper goods European manufacturing comprises 615 establishments, employs about 7,500 persons, and has a total capitalization of 273,643,500 francs A large proportion of it is centered at Casablanca

Although mining has not been fully developed, with the exception of phosphates, a growing amount of manganese, coal, lead, copper, and zinc is being extracted

There are also excellent prospects for fruit growing, but this phase of farming has not been developed to any great extent, for the colonists' chief interest so far has been a quick return on investment

Foreign trade —The imports of French Morocco in 1928 amounted to about $78,383,000 The chief commodities imported were sugar, coal, lumber and other construction materials, petroleum products, tea, cotton goods, edible oils, hardware, industrial machinery, agricultural implements, and motor vehicles Imports from the United States during 1928 were valued at about $4,670,000 and were composed mainly of petroleum products, agricultural implements, automobiles, industrial machinery, and hardware, the United States having almost a monopoly in the first two items The United States was third in the Moroccan import trade

The total exports in 1928 amounted to about $50,000,000, of which the declared exports to the United States were valued at $1,225,549, placing that country in seventh place in Moroccan export trade The principal exports are phosphates, barley, wheat, beans, hides and skins, cork, and livestock The principal commodities shipped to the United States are palm-leaf fiber, almonds, seeds, cork, sandarac gum, goatskins, phosphates, snails, and wild onions

Ocean transportation facilities —The principal seaports of Morocco, in order of importance, are Casablanca, Kenitra, Mazagan, Safi, Rabat, and Mogador The principal inland commercial center is Oudjda, in the eastern part of the country It is the chief entrepôt for goods coming down from Algerian ports, and is second only to Casablanca in the total amount of trade handled

Regular steamship service is maintained between Casablanca and Marseille, Bordeaux, Oran, Dakar, Tangier, Gibraltar, Canary Islands ports, Spanish ports, and New York, while considerable business is done by tramp steamers with other French ports and those of Algeria, Morocco, Portugal, Belgium, Italy, the Netherlands, and the Scandinavian countries Regular direct monthly service in both directions is maintained between Casablanca and New York Merchandise for eastern Morocco entering by way of Oran is shipped to Oudjda by railroad

There are no special regulations, but goods should be well packed, as there is a good deal of rough handling and much theft at the wharves in the ports Almost all goods are landed by lighters

HIGHWAYS

To Marshal Lyautey, the first French governor general of Môrocco and "Empire Builder," is credited a statement that motor vehicles were responsible for the development of Morocco more than any other single thing The large rôle that automobiles have played in the building up of the country is largely the result of the entirely inadequate railroad transportation system and the far-sighted policy of the French in building roads to connect the important centers of population As a consequence, the network of highways is fairly complete at the present time, and most roads are kept in a good state of repair

The highway system of French Morocco consists of three categories Main or first-class roads, with a total length of 3,058 kilometers, secondary or second-class roads, 1,194 kilometers, and rural roads, about 500 kilometers In addition, there is a large number of "pistes" or desert tracks, many of which are practicable for automobile travel except during the short period of the rainy season All of the roads in the first two categories are macadamized, and about 450 kilometers are surfaced with tar or asphalt substances The roads coming under the main highway system for the most part connect the various ports, as well as leading from the ports to the larger cities in the interior of the country, and they serve also as a system of communication between eastern and western Morocco and between Morocco and Algeria

The next most important group of highways are the roads of secondary importance, used for the transportation of people and merchandise from the more productive parts of the country to the larger cities that offer natural outlets for their products These serve as feeder lines to the main group

The rural highways that connect the outlying settlements form the third group of Moroccan roads

All of the roads are constructed and maintained at the expense of the Government public works service Credits for the first two categories come out of the budget for public works, and for the third out of the agricultural budget

The less important lines, or "pistes," serve as a means of transportation between smaller settlements, and the money for the construction and maintenance of these lines is taken out of the credit given to the controlling authorities of the regions, taking into account the amount of taxes they furnish

The administration of road budgets of the protectorate is assured by the general direction of public works at Rabat under the control of the general finance direction of Morocco and according to rules similar to those being followed in France

DEVELOPMENT OF MOTOR BUS TRANSPORTATION

The construction of an efficient system of automobile roads between the important centers has been of great commerical importance to French Morocco and has played a large part in the development of the present well-developed bus services covering the entire country

Of the 4,500 motor busses and trucks in service in Morocco on January 1, 1930, fully two-thirds were used for passenger or combination freight and passenger transportation In 1928 and 1929 there was a considerable increase in the extent of communication by motor bus, particularly in the light-bus traffic The main cities have been connected by an efficient bus service for a number of years, and the development in recent years has been more pronounced in services between small centers and as feeders to the main lines The Compagnie Générale de Transports et Tourisme au Maroc, commonly called the C T M Line, has a fleet of 250 busses, chiefly Panhards, which cover the entire country This large and well-organized service is subsidized by the protectorate government for carrying mail There are a few other medium-sized companies operating in various districts, but none that cover the entire country as does the C T M In addition, there are a large number of small lines employing light American trucks which are being utilized between small towns by native owners for communication between different markets and are replacing the traditional donkey and camel, which up to a few years ago was the only method of transportation available These busses, loaded to their utmost capacity, are equipped with wooden bodies and collapsible benches and are used for both freight and passengers

The attitude of the general public toward bus operation is most favorable, and the use of these vehicles is widespread, even in those sections where the narrow and broad gage railways are in operation

All the principal cities and towns of the protectorate are now served and connected by bus lines There are lines radiating from Casablanca south along the coast to Mazagan, Safi, and Mogador, southwest to Marrakesh, north to Fedalah, Rabat, Kenitra, and Tangier, and north and east to Rabat, Meknes, Fez, Taza, Guercif, Oudjda, and from there into Algerian territory to Oran From Mogador, Safi, and Mazagan lines run to Marrakesh, from Marrakesh there is a line to Cued Zem and Tadla, between Casablanca, Rabat, and Kenitra there are various local services

There are at least a dozen companies centering their activities at Casablanca for the transportation of passengers to Rabat, Marrakesh, Mazagan, Safi, and Mogador Passengers are taken to Marrakesh twice a day Rabat, being the capital of the protectorate, is the most favored, the number of trips in each direction (to and from Casablanca) ranging from 2 by small companies to 15 by the larger companies Practically every car is filled to capacity on all routes, except occasionally on those to the south of Casablanca along the sea coast, especially south of Mazagan

The C T M Line does not use any American busses in its service, their equipment consisting chiefly of Panhard and Saurer busses The second largest transport company in Morocco uses Minerva busses exclusively, while some of the others use Panhard, Rochet-Schneider, and a popular light American truck The latter is used chiefly on secondary and feeder lines

None of the cities in French Morocco have electric street railways, and only in Casablanca, Fez, and Marrakesh are there city bus services The narrowness of the streets in the native quarters and the small size of the European sections of cities other than those mentioned above make such a service impracticable

The large type of motor bus used in French Morocco is customarily built on Panhard-Levassor chassis of 16 and 20 horsepower, which are the types adopted by the C T M This type of bus has also been adopted by some private owners, while others are, in some instances, employing Minerva chassis with satisfactory results The smaller busses, which find a profitable business in supplementing the large main lines or are used for short local runs, are usually built on American chassis There are a few Citroen and Renault vehicles in this business, but they are in a great minority, and bodies are built locally in order to avoid the heavy freight charges Several local firms specialize in the building of bus bodies

Import figures show that the imports of chassis to be equipped with locally built bodies have expanded in proportion to those of passenger cars, and in the light models American models are easily the most important It will be difficult, however, for heavier American chassis to compete in price with the French makes

MOTOR-VEHICLE REGISTRATIONS

Official statistics on registrations of motor vehicles in Morocco show cumulative totals and do not account for cars no longer in operation According to the best estimate available, however, there were about 12,000 automobiles in use in French Morocco at the beginning of 1929 and about 15,500 at the end of that year

It is estimated that about 7,000 passenger cars and 1,700 trucks were in circulation during 1927 In 1928, 9,344 motor vehicles paid the circulation tax, to which must be added the Government cars not paying the tax and the country vehicles not attached to any municipality registrations The 1928 figures in detail are as follows

Passenger cars	7, 650	Military and governmental cars (estimate)	1, 500
Busses	332	Country vehicles not paying tax (estimate)	750
Heavy trucks	710		
Light trucks	952		
Total registered	9, 644	Total vehicles	11, 894

Approximately one-third of the automobiles in French Morocco are in the Casablanca district, with Rabat, Fez, and Meknes next in importance as to the total number of vehicles registered The following table shows the relative importance of the motor-car market in various municipalities, but is not complete, inasmuch as vehicles not paying tax are not included Some of the cars listed are in rural districts although included in the towns, while another 750 units in more remote parts of the country are not included at all

AUTOMOBILES PAYING CIRCULATION TAX IN FRENCH MOROCCO

Municipality	1927				1928			
	Passenger cars	Busses	Heavy trucks	Light trucks	Passenger cars	Busses	Heavy trucks	Light trucks
Azemmour	6	17	----------	9	9	32	----------	15
Casablanca	2, 447	89	210	224	3, 786	130	305	333
Fez	486	8	49	19	789	13	74	29
Fedahla	----------	----------	----------	----------	27	----------	----------	5
Kenitra	193	14	16	18	249	13	14	24
Marrakesh	403	11	23	105	406	20	35	138
Mazagan	76	3	9	30	200	4	28	16
Meknes	457	19	65	73	598	35	76	120
Mogador	72	----------	26	23	75	----------	36	25
Oudjda	230	11	39	41	271	17	70	50
Ouezzan	11	3	----------	2	42	6	----------	8
Rabat	324	----------	16	35	812	----------	42	84
Safi	141	33	17	5	189	45	21	8
Sale	24	4	----------	15	47	5	----------	28
Sefrou	21	----------	----------	----------	12	----------	----------	----------
Settat	43	4	3	27	63	3	8	44
Taza	73	7	25	23	75	9	1	25
Total	5, 007	223	498	649	7, 650	332	710	952

MOTOR VEHICLE IMPORTS

Imports of passenger cars and trucks into Morocco have been steadily increasing since 1925, particularly during 1928 and 1929. The majority are of French origin, but the American percentage of the total has been gradually growing, amounting to 26 per cent of the total imports in 1925, 32 per cent in 1928, and 42 per cent in 1929.

Taking the figures for 1928 as an example, 2,976 cars and trucks were imported from France, 1,550 from the United States, 300 from Italy, and 74 from all other countries, a total of 4,900 units.

French Moroccan import figures do not differentiate between the various types of vehicles, but contain two classifications, complete automobiles and chassis. For practical purposes, however, the first of these can be considered as passenger cars and the second as trucks and busses. The following table shows imports of motor vehicles into Morocco from 1925 to 1929 by countries of origin.

IMPORTS OF CARS AND CHASSIS INTO FRENCH MOROCCO

Year and country of origin	Complete automobiles	Chassis
1925		
France	1,107	116
United States	328	178
Italy	125	15
Belgium	16	----------
England	1	2
Other countries	7	3
Total	1,584	314
1926		
France	1,871	185
United States	399	150
Italy	231	8
Belgium	5	5
England	2	----------
Spain	5	----------
Total	2,513	348
1927		
France	1,766	258
England	2	1
Belgium	19	22
Italy	198	12
United States	274	331
Total	2,259	624
1928		
France	2,648	328
England	14	7
Spain	1	----------
Belgium	33	19
Italy	283	17
United States	951	599
Total	3,930	970
1929		
France	2,792	296
England	28	42
Germany	70	19
Spain	2	----------
Belgium	47	30
Italy	338	9
United States	1,670	1,058
Total	4,947	1,454

A rapid expansion of the motor-vehicle market took place in the early part of 1929. Owing to the very poor crop conditions in the latter half of that year, there was a decided decline in car and truck sales, nevertheless, the total for the entire year increased over that for 1928 by about 31 per cent.

The value of merchandise for the application of the customs tariff is estimated in the Bureau of Customs from the commercial invoices plus all charges to dock at Casablanca. For the purpose of simplification and to obviate any discussion between the customs and importers as to the dutiable value, an arrangement has been made between the importers and the "Commission des Valeurs en Douane" fixing a definite value on each model, based on the retail price less commission, discounts, etc. This system seems to work out to the satisfaction of the parties concerned No consular documents are necessary on direct shipments, but commercial invoices should accompany all shipments

REGULATIONS AND TAXATION

Every car must be equipped with two brake systems, independently operated and controlled and sufficiently powerful to stop a car on the most abrupt incline One of the systems must operate directly on the wheels or on the drums immediately connected therewith This is the same rule as is applied in France

Dazzling lights are prohibited and parking lights are required Heavy automobiles, such as trucks and busses, must be provided with rear-view mirrors of a type accepted by the administration of public works and so adjusted as to permit the driver to see easily the vehicle about to overtake him

There is a free circulation of motor vehicles between the three different zones of Morocco, and the regulations and taxation are substantially identical throughout the country The regulations and taxes given in this digest are those promulgated in the zone of the French protectorate of Morocco, and they seem to offer no impediment to the sale of motor vehicles The following scale of taxation on motor vehicles is that in force in the city of Casablanca Passenger cars are assessed on a basis of horsepower according to the French formula, as follows

	Francs per year
Passenger cars	
Up to 7 horsepower	72
7 to 12 horsepower	102
13 to 16 horsepower	152
17 to 23 horsepower	252
24 horsepower and over	502
Busses	
Under 16-seat capacity	302
Over 16-seat capacity	402
Trucks	
Under 1,500 kilos	102
1,500 to 3,000 kilos	152
3,000 to 5,000 kilos	202
Over 5,000 kilos	302
Motor cycles	30
With side car	80

The permanent national license costs 100 francs

DISTRIBUTION CENTERS

Practically all cars coming by water to French Morocco enter by the port of Casablanca From this city are supplied the entire western and central sections of the country Although the port has warehouse facilities, they are not much used at present Free storage for 10 days is allowed on docks, and many crated cars are left there for that period before delivery is taken by the various dealers American cars are usually taken off the boat by lighters, but most French cars arrive uncrated and are landed directly on the dock There are only four berths, and these are reserved for liners on which most of the French cars arrive At the present time the few berths available are used for the landing of passengers and the loading of certain cargoes, but better loading and unloading facilities are being built, and it is expected that in about two years the port will be able to handle all incoming and outgoing freight direct from steamer to dock and from dock to steamer

Cars should enter by the port of Casablanca except for the eastern strip of Morocco, of which Oudjda is the center In this eastern district motor vehicles pay only 5 per cent duty, and by bringing in the cars from Oran, Algeria, a saving of 7½ per cent is effected If these vehicles are later transferred to the western district they must pay the additional duty Furthermore, Oudjda is closer to Oran than to Casablanca, and the country surrounding it is more closely allied to Algeria from an economic standpoint than to Morocco The reason for the lower duty of the eastern districts is that this territory is less developed than the rest of the country Later the duty will be 7½ per cent, then 12½ per cent, the same as the rest of the country

Casablanca is the most important distribution center of the country, followed by Fez, Meknes, and Marrakesh, and for adequate sales distribution dealers should be placed in these cities at least Cities of secondary importance in the motor-vehicle trade are Rabat, Kenitra, Mazagan, Safi, Mogador, and Agadir The southern part of the country is much poorer economically and is not very important at present as a car market, its population being made up chiefly of seminomadic tribes

Factory supervision—The question of factory supervision depends largely upon the size of the company and the volume of business done, not only in Morocco but in the balance of north Africa as well An ideal arrangement would be for a factory representative with headquarters in Algiers to cover Morocco together with Algeria and Tunisia, but if the total volume of business does not warrant the keeping of a man in that territory all the time, it can be most conveniently handled from Paris by a factory representative attached to the European organization If, however, a factory representative is appointed to cover the north African district, it is considered advisable that he be responsible direct to American headquarters

MARKET SURVEY

Although the total number of automobiles in circulation has grown gradually from year to year since 1920, the ratio of yearly increase over the preceding year, based on the estimates of total cars in circulation, has not been so rapid as might be expected Consideration must be given, however, to the fact that the life of a car in Morocco is, on an average, not as long as in many other countries, averaging about four years for passenger cars and three years for trucks The wide distances to be traversed, the great need for motor-vehicle transportation, and the absence of adequate railway service have put a particular strain on the vehicles The main roads are in excellent condition, wide and with long stretches of straight road—a speeder's paradise Most vehicles are overloaded, and it is estimated that the average passenger car requires one complete set of tires per year, while trucks and busses require from two and one-half to three sets The chief reasons for this short life are the hard wear and the extreme heat in summer

PASSENGER CARS

The market for passenger cars in Morocco has shown improvement each year since 1925, with 1928 and the first six months of 1929 standing out particularly as high points in sales In the early part of 1928 dealers were overstocked, but through favorable economic conditions and good crop prospects, the stocks were rapidly disposed of and sales were more active than they had been for some time Throughout 1928 a great increase in imports was registered, and the sale of cars progressed rapidly The best seller is the low-price vehicle, although sales of comparatively high-price cars (from $1,500 to $2,000) were astonishingly large, taking into consideration the financial status of the population and the small number of potential purchasers for these vehicles The chief competition to American cars comes from the low-priced French makes, such as Citroen and Renault, and from the Italian Fiat Citroen naturally takes the lead, but by aggressive salesmanship and liberal credits Renault ran close to its competitor at the close of 1928 In that year the taxicab market was given particular attention for the first time, and with the introduction of taxicabs in the large cities a determined effort was made by French manufacturers, especially Citroen and Renault, to dominate this market, and the first fleet of cabs consisted chiefly of these makes Since then some American makes have begun to enter this part of the market, and it is probable that many French cabs will be replaced by American vehicles when the former wear out

Up to a year or so ago very little attempt was made to develop a market in the interior, dealers concentrating their sales in the larger cities, principally Casablanca With the gradual saturation of this market, however, more effort has been made to sell cars in the smaller towns and rural districts Because of the low purchasing power of most of the natives, efforts had to be centered on Europeans, Jews, and the small caid, or chieftain Among the Arabs, the latter group was practically the only one wealthy enough to buy motor cars With the gradual economic improvement of many of the Arabs in agricultural pursuits, the native element will become increasingly important, although limited to the caids and the large landholders as long as the present feudal system continues As European penetration continues, there will be a slow tendency away from this system, and, as in Algeria, the natives will gradually become more Europeanized The Jewish population also contains an important percentage of potential buyers, but they are likely to buy low-priced cars when they could very easily afford the medium or high-priced makes

Another factor militating against the full development of motor-vehicle markets in urban centers is the fact that most Arab car owners have no place in which to keep their cars in the native walled city, or "ville indigène," common to every Moslem city of any size In such towns as the native centers of Fez and Marrakesh where, in the narrow, winding, hilly streets, only a donkey or camel can make progress, it is entirely out of the question for cars to be driven, and owners must park them outside the walled limits of the cities in which they reside Nevertheless, it is the opinion of some dealers that the importance of the native market has been underestimated and that the biggest future development will be there These dealers state, however, that more publicity in Arabic would be helpful, and that high-class Moorish salesmen must be employed to sell among this class

Another feature of the market—and this is particularly true of European purchasers—is that many people buy cars above their means Credits have been comparatively easy so far, and although it is cheaper to run a car in Morocco than in Europe and taxes are more reasonable, it is believed that business would be on a sounder basis if these buyers kept within the price class they can afford

USED CARS

The used-car problem is considered one of the three principal evils of the local motor-vehicle trade, the other two being the entirely inadequate service facilities and the unsatisfactory credit situation

There is no standard practice in the marketing of used cars in Morocco, and competition is so keen that too high values are often given on trade-ins With the exception of one or two large American companies, no set price on used cars is imposed, and dealers usually increase the price to allow for additional trade-ins The lack of adequate spare parts has a strong effect upon the used-car business, particularly for American makes, as parts for most French cars are much more easily available For this reason French cars are in a much more favorable position in the used-car market than the American makes

With few exceptions, dealers are well stocked with used cars, disposal of which is extremely difficult, owing to the price at which they are purchased It is estimated that there are currently about 500 used cars on the Casablanca market, which is, of course, the largest in Morocco and may be taken as two-thirds of the whole stock of these vehicles in this country Purchasers of new cars usually insist that the dealer take over their old car, and go from dealer to dealer to ascertain which will pay the highest price, then make their decision on that basis as to the new car to be purchased As a result, many dealers bid prohibitive prices for used cars in order to get a sale for a new one, with the consequence that they usually have a large stock of secondhand models on hand

TRUCKS

The market for trucks in Morocco is particularly encouraging, owing to the fact that a large amount of the total freight is carried by these vehicles Sales up to the latter half of 1929 were good, but with the poor crops bringing on a general depression, truck sales were affected along with those of passenger cars

In spite of the comparatively good market for trucks, the use of these vehicles has not developed to its utlmate extent by any means, and donkeys are still depended upon as the chief means of transportation by most natives, particularly in the interior The American trucks sold so far have been principally 1-ton models, but there is an increasing demand for the heavier units Most of the heavier duty trucks sold are Berliet, Panhard-Levassor, Rochet-Schneider, and Saurer American chassis are mostly employed for light delivery trucks, although Citroen, Renault, and Fiat have made a number of sales

A new market has been created for the light truck, which is almost entirely in the hands of American makers This market is furnished by the native Arab owning and operating one or two small trucks or busses plying between various country markets not served by regular bus lines This method of locomotion is gradually superseding the old foot or donkey path methods The heavy-duty truck is still principally a monopoly of the French manufacturers, and the Berliet

5-ton model, loading 7 or even 7½ tons and retailing at 66,000 francs, has found no serious competitor

There is a market for American 3-ton to 3½-ton trucks—advertised as being of that capacity and not as 5-ton models Inasmuch as all trucks are overloaded, if the 3½-ton truck is advertised as a 5-ton truck, such overloading will naturally not have any beneficial results on performance or future repeat orders It is the opinion of most dealers that the market for trucks in general will continue to hold steady, even if passenger-car sales decline

The next question is that of service, and this is the most important factor retarding American motor truck sales In the matter of truck transportation perhaps 25 per cent of the roads that commercial vehicles must pass over are in a poor state of repair, and the strain on the truck is extreme As a consequence, there is a great deal of breakage of parts, and the American truck is often held up for a long time awaiting repairs, while French manufacturers keep adequate part stocks in Casablanca The problem of spare parts should not be considered or compared with the similar problem in many other markets or in the United States, because of the fact that parts which ordinarily never wear out elsewhere are sometimes the first to break under the stress of Moroccan conditions Consequently the parts problem should be studied entirely from the local angle

The question of spare parts is perhaps the most serious that local dealers must face Many of them have an entirely inadequate stock for ordinary needs, while in the case of others the company requires them to order a certain amount Of the latter practice many dealers complain that the company forces them to overstock, but this criticism is doubtless unjustified in most cases, as many of the dealers do not know how to order, and when they lose money it is chiefly because they have ordered too many units of certain parts and too few of some others This condition is particularly true in the case of the smaller dealers, but the spare-parts problem could be remedied if factory supervisors would give it closer attention and after a study of conditions would show dealers just what spare parts are needed and in what quantities

BODY BUILDING

A few of the passenger-car and all of the truck and bus bodies are built locally There are three or four important body builders in Casablanca as well as a number of smaller concerns engaged in this work Some of the dealers in the interior have experienced some difficulty in getting delivery of their orders in less than four to six months, and as a result one or two plants have sprung up in Fez to supply the demand Rabat has one plant, also Although the finish is not considered as good as that of imported bodies, the locally built units are well adapted to the conditions of the country, and their lower price is an important factor Practically all trucks and busses circulating in Morocco are loaded to their extreme capacity with passengers, freight, general merchandise, and market produce, which calls for especially strong bodies Practically all bus bodies have iron bars or a "fence" about 3 feet above the top of the vehicle, to provide room for this ton or more of freight to be piled on the roof

The most important body builder in Casablanca, the Générale Automobile Marocaine, has a capacity of 150 bodies a month and, when working at capacity, employes about 250 workmen and 18 office employees Ordinarily, however, its force consists of about 150 workmen and 15 clerks

PARTS AND ACCESSORIES

The market for American parts and accessories is good despite the keen competition in the latter from French and other European countries American accessories are generally somewhat higher in price, but they find considerable favor The market for replacement parts is limited almost entirely to the parts stocked by dealers of each principal make of car and supplied by the manufacturers, and dealers usually purchase only the spare parts manufactured by the firms whose cars they represent

The garage business is not yet organized sufficiently, nor are there many service stations, and it is only within the last two or three years that filling stations have been installed by the different companies importing gasoline

GARAGE AND SERVICE EQUIPMENT

There are perhaps 60 to 70 so-called garages in all Morocco, of which only 6 or 8 come anywhere near being adequate service stations With one or two exceptions, all of these are operated by dealers of American cars Real service facilities are practically unheard of, and only recently has there been a tendency to install any kind of efficient repairing equipment

Most of the mechanics have been trained in the old school and are reluctant to try out modern garage equipment These mechanics are practically all Europeans, owing to the fact that the native Arabs are not at all mechanically bent Any intelligent sales campaign for the introduction or extension of American garage equipment must include a great deal of pioneering work A market for this equipment must be created, and the best way of selling it is to place some of the more needed and representative articles on a truck and to demonstrate them to dealers all over the country Some garage equipment has been sold recently, but the total volume of business does not amount to large proportions

The best market at present is for general garage tools, hoists, valve grinders, etc Hydraulic machinery, car-washing machines, and other comparatively expensive equipment would be difficult to sell because garage owners, in general, have but a small capital, and natives can be hired cheaply to wash the cars Firms handling these articles must have adequate financial means, as they are obliged to extend credit to their customers, terms being usually half cash and balance payable within six months With the growing competition it is possible that more lenient terms will have to be made

Quotations to dealers should be made c i f Casablanca, cash against documents until fully established connections have been made, when a certain amount of credit would probably assist the dealers to increase their sales

MOTOR CYCLES

Owing to their high prices and also to the fact that no serious effort has been made by American companies to develop this market, sales of the American-made motor cycles are practically negligible. The American product is generally considered too heavy a type and can hardly undersell some of the cheaper types of French manufacture.

Dealers who have been approached as possible agents for American motor cycles have generally declined because of the lack of demand and because of their belief that a demand can not be created.

There are no statistics available giving particulars of motor cycles imported into Morocco, as customs figures are based upon weight and include both motor cycles and accessories. French and Belgian makes are the most popular, but a few British makes, such as the Triumph and the Raleigh, also find a small market.

According to the best estimates available, there were about 1,800 motor cycles in operation in Morocco at the beginning of 1930. Registration statistics show that between the period of October 1, 1927, to March 31, 1928, 129 motor cycles were registered, whereas from April 1 to June 30, 1928, 161 were registered, and from July 1 to September 30, 1928, 159 were registered, the largest proportion of which were of French manufacture.

The increase in registrations noted above is, of course, primarily due to the season of the year, sales being more active during the spring and summer months. However, some of the increase may be attributed to the popularity of the motor cycle among the younger members of the European colony, but as motor cycles have not yet been used to any extent by native classes, it may be foreseen that within a few years the younger natives will readily take to this means of communication. Dealers in motor cycles are organizing races and other sporting events with considerable success in order to interest the public.

The popular types are chiefly those of the 3½ to 5 horsepower solo class. Side cars are practically unknown, owing to the fact that a motor cycle with a side car costs approximately as much as a small passenger car.

The motor-cycle trade in French Morocco is divided among French, British, and Belgian makes. At present only two American makes have been noticed on the market, and these in small quantities.

Of a total registration of 449 units from October 1, 1927, to September 30, 1928, 163 units were French, 79 British, and 81 Belgian. The principal makes registered were:

FRENCH		BRITISH		BELGIAN	
Monet-Goyon	74	Triumph	25	F. N.	49
Terrot	24	Raleigh	21	Gilette	13
Thomann	20	B. S. A.	17	Sarolea	19
Gnome & Rhone	29	A. J. S.	8		
Moto Rhonyx	16	Ariel	8		

Motor cycles are sold in French Morocco by dealers handling motor cycles and bicycles and not by the automobile dealers.

COMMERCIAL DATA

MARKET PREFERENCES

Standard-model cars and trucks can be sold in Morocco without any particular changes. Bright colors are very popular, and the preference toward 7-passenger cars rather than cars of less carrying capacity is much greater than in most markets Moorish families are often very large, including several wives and numerous children To satisfy the demands of the large families, 7-passenger vehicles are particularly favored where they can be afforded The question of speed is important, and inasmuch as most main roads are excellent and there is comparatively little traffic, throttles are usually kept wide open in order to cover the long distances in the shortest possible time The element of speed is required even in trucks Another desirable feature in motor-truck design is a short turning radius, because of the many hairpin curves in the southern and eastern mountainous districts

Up to a few years ago most cars consisted of open models, but following the lead of most other world markets, perhaps 80 to 85 per cent of the motor vehicles sold to-day are closed models

ADVERTISING

Very little advertising of automotive products is done in Morocco, because it has not heretofore been considered necessary Up to the present Morocco has been a seller's market, but with the increasing ratio of motor vehicles to population it will be necessary to devote much greater attention to this important phase in marketing

It may be that the logical medium in future advertising policies is billboard or other outdoor advertising, which so far has been very little developed There are a number of good daily papers in French that reach the European population, but it is difficult to plan an efficient program to reach the ever-increasing market among the native buyers, partly owing to the fact that the newspapers printed in Arabic have a very small circulation and partly because many natives, even in the upper classes, do not know how to read

INSTALLMENT SALES

The element of credit plays a larger rôle in business in Morocco than in many other countries The entire district is newly developed, and most commodities are sold on liberal credit terms Practically 90 per cent of all automobiles in Morocco, both new and secondhand, are sold on a deferred-payment basis No organized system for financing motor-car sales exists, and it is customary for dealers to carry the paper of their clients The usual down payment is 25 to 33 per cent of the value on all classes of cars, with the balance spread over 12 to 18 monthly payments, but drafts are often renewed, and it is not uncommon to extend payments to 24 months The country is chiefly dependent upon its agriculture, and whenever there is a poor crop dealers find themselves forced to extend credit over an additional period It also often happens that the cash-down payment is reduced to as low as 18 per cent because of the keen competition among dealers Nevertheless, repossessions have been comparatively small, in spite of frequent extensions and the loose credit practices

Banks discount automotive paper at 6 or 7 per cent in very much the same way as other commercial paper, but as a result of the poor crop in 1929 they have begun to tighten up on this business

SPANISH MOROCCO AND TANGIER

The international zone of Morocco is so closely linked, geographically and economically, with the Spanish zone that any study of the automotive market of these two districts must necessarily be a joinone The city of Tangier has a population of about 60,000, and the total area of the international zone does not exceed 140 square miles The Spanish protectorate consists of the northern strip of Morocco, about 60 miles wide, extending from the Atlantic east about 250 miles along the Mediterranean, its total area being 18,360 square miles

The topography of the entire district is mountainous, and the main occupation consists of stock raising and a little diversified agriculture Although the district has a wealth of natural resources in mines, it is the least developed of all Morocco, and its low purchasing power and warfare in the Rif for a number of years up to 1927 has retarded general economic development considerably

There are only about 1,500 automobiles in circulation in the entire district, of which approximately 500 are registered in Tangier and 1,000 in Spanish Morocco The cars destined for the international zone are usually shipped direct to Tangier, while those for Spanish Morocco enter by the free ports of Melilla and Ceuta, both of which are not integral parts of the Sultanate, having been in the possession of Spain for several hundred years Ceuta is more important than Melilla, because the present highway system connects it with Tetuan, the capital, and other cities in the western part

The population of Spanish Morocco is estimated at about 800,000 and that of the international zone at 75,000 There are very few Europeans outside of the more important cities, and the native inhabitants are principally of the Berber race, speaking various dialects of Arabic Spanish is the commercial language of the district, but French and English are also used in Tangier The Spanish peseta is the legal monetary unit in Spanish Morocco, while in the international zone both the peseta and the Moroccan franc (on a par with the French franc) are in common use Because of the international character of Tangier, British, Italian, and American currency is freely accepted, and there is also a British and French post office

REGISTRATION OF MOTOR VEHICLES

As in French Morocco, motor-vehicle registration statistics in Tangier and Spanish Morocco are cumulative, and it may be safely estimated that 50 per cent of the vehicles included in such registrations have been scrapped or taken out of the district by their owners The latter is particularly true of the international zone, where the foreign population is largely a floating element There are also a number of vehicles registered in the French zone but used chiefly in the Spanish protectorate

The following table shows the number of motor vehicles in circulation in Tangier and Spanish Morocco on January 1, 1929, according to official registration statistics

REGISTRATION OF AUTOMOBILES IN SPANISH MOROCCO AND TANGIER

Type	American	European	Total
TANGIER			
Passenger cars	212	286	498
Busses	24	50	74
Trucks	176	137	313
Taxis	2	18	20
Motor cycles	---	72	72
Total	414	563	977
SPANISH ZONE			
Passenger cars and busses	356	491	847
Trucks	400	244	644
Motor cycles	1	32	33
Total	757	767	1,524

The chief value of the above table is as a comparison between the number of American and European cars in circulation According to these figures, 42 per cent of the total number of motor vehicles registered in Tangier and almost 50 per cent of the total in Spanish Morocco were of American origin

As has already been stated, the above registration figures are cumulative, but according to the best estimates available, about 500 of the automobiles registered in Tangier are still in circulation, and about 1,000 in the Spanish zone still operate While no figures on the number of vehicles paying circulation taxes are available for Spanish Morocco, the following number of cars paid circulation taxation in Tangier in 1929

Passenger cars	206
Taxis up to 6 seats	89
Busses	
From 6 to 12 seats	34
Over 12 seats	29
Light trucks up to 750 kilos	2
Trucks and tractors from 750 kilos to 3 metric tons	116
Trucks and tractors above 3 tons	22
Trailers	2
Total	500

IMPORTS OF MOTOR VEHICLES

Imports of motor vehicles into Tangier during 1928, the latest figures available, amounted to 100 complete automobiles and 93 chassis (probably all trucks) Owing to a different classification of customs statistics, similar figures for Spanish Morocco are not available The latest Spanish Moroccan figures show that 313,117 kilos of automobiles, valued at 963,498 pesetas (about $160,600), were imported into the Spanish zone in 1926

The following table shows the number of cars and chassis imported into the international zone yearly from 1924 to 1928

IMPORTS OF MOTOR VEHICLES INTO TANGIER

Year	Complete automobiles	Chassis	Year	Complete automobiles	Chassis
1924	42	8	1927	74	35
1925	25	36	1928	100	93
1926	59	16			

HIGHWAYS

The highways that exist in Spanish Morocco are fairly good, as many of them had been planned and built for military expediency Lately the Spanish Government has been spending considerable money in public works in this territory, and a large proportion has been used in the construction of much-needed highways The western part of the Spanish zone has a network that closely approximates the more urgent needs of the territory, but in the eastern end the roads are still totally insufficient The cities of Ceuta and Melilla, two important seaports, at opposite ends of the commercial part of the Spanish zone, are connected neither by highways nor by railways, and the only means of transportation between these two points is by water However, the construction of a road which will connect these cities has been started, but it will be some time before the work can be completed

The international zone has about 42 kilometers of highways, all macadam and serviceable for automobile traffic throughout the year There are also about 50 kilometers of municipal roads, of which 20 kilometers are dirt and 18 are macadamized According to the latest statistics, the length of highways in Spanish Morocco is 1,654 kilometers, or about 1,025 miles Of this total, approximately 900 kilometers consist of earth and gravel roads, 550 macadam, and 200 asphalt

A special appropriation of 10,000,000 pesetas was granted in May, 1928, by the Spanish War Department to the army of occupation for the construction of permanent barracks and for roads of purely military character and their maintenance Of this amount it is estimated that about 1,000,000 pesetas was spent in 1929 for the construction and maintenance of these roads

The annual expenditure for all roads maintained is about 3,500,000 pesetas In June 1, 1928, a project was approved for the construction of a highway from Tetuan to Melilla, a distance of about 270 miles, and an appropriation of 31,000,000 pesetas was allocated from an 80-year 5 per cent loan of 82,000,000 pesetas made in 1928 by Spain to the Shereefian authorities for public works Contracts have been made for the construction of the central section of 100 miles in four years

Existing roads in the Spanish zone are open to traffic during the entire year, except in a portion of the central part, where they are impassable during the rainy season

MOTOR-BUS TRANSPORTATION

Since rail transportation facilities are inadequate, motor busses are the only means of conveyance available to the public in many districts of Spanish Morocco The only important bus line in the eastern part is between Melilla and Oudjda, together with a few short local services, but in the more developed western districts two comparatively large companies operate between all the important towns The following towns are connected by daily motor bus communication Ceuta, Tetuan, and Tangier, Tangier and Larache, via Arzila, Ceuta and Larache, via Tetuan and Rgalia; Ceuta and Xauen, via Tetuan, Tetuan, Bab, and Taza, Bab, Taza and Tangier, via Tetuan, and Alcazar and Larache

The services between the towns noted above are frequent, and between Tetuan and Ceuta and Tetuan and Tangier there are four to eight busses daily in each direction

Both the authorities and the public are favorably inclined toward bus operation Standard passenger cars and truck chassis are used chiefly for busses, although there is some demand for the special-type French chassis having a seating capacity of 25 passengers

MARKET SURVEY

In view of the economic and highway conditions in this territory, the development of motor transportation has been slow, and there is little possibility at present for rapid or even moderate expansion The warfare during 1925 and 1926 prevented ordinary traffic and normal economic expansion These factors militated against the sale of motor cars to civilians not only in the Spanish zone itself but also in Tangier, which is surrounded by the Spanish zone except for its harbor

Since the suppression of the Riffian revolt and the initiation of a program of public development by the Spanish authorities, the development of motor transportation has again assumed its normal slow growth

In order to determine market conditions in this district, it is necessary to take into account the fact that the demand for automobiles is practically confined to Europeans, which constitute only a small fraction of the population The natives live under conditions which are similiar to those of their ancestors, resist change, are indifferent to modern ideas of comfort, and have a low purchasing power based on American standards Of the total automobile registration in the Tangier zone in 1928, only 5 per cent belonged to Moorish owners

Another factor which tends to hinder the sale of motor cars is the inadequate highway system and the narrow streets in native towns In Tangier itself the native streets are usually too narrow and otherwise unfit for motor-vehicle transportation Moreover there are only two arteries leading from the city which offer any inducement to motor travel, one leading to Tetuan and Ceuta and the other to Rabat and Casablanca in the French zone, via Arzila and Larache This is in sharp contrast to the French zone, where the system of highways comprises several thousand miles of first and second class roads

The used-car problem is practically nonexistent Motor vehicles are given extremely hard wear, and owners use them for a few years until they are taken from circulation

The principal market is for trucks from 2 to 4 tons capacity and for 5-passenger touring cars in the medium and low price classes The Spanish zone is very mountainous, and a short turning radius, particularly for trucks, is desirous

American motor cars and trucks are popular, but are meeting with strenuous competition from French makes An important consideration is the fact that American motor vehicles usually consume more gasoline than their foreign competitors There is also some Italian competition (Fiat), but this is gradually falling off

There is some local construction of truck and bus bodies, but many of these are shipped in from Casablanca Stocks and spare parts are limited to the quantities necessary to make repairs, without great stress being laid upon maintenance of a service standard The market is so small that no attempt has been made for elaborate showrooms, and two or three cars or trucks is usually the limit of the current stock The question of stock and spare parts is a difficult one because of the isolation of the territory

Stocks may be carried in Malaga or Algeciras in Spain, in Gibraltar, or in Tangier Because of the isolation of Melilla from Tangier, it is much easier and quicker to send spare parts to the former port from Malaga

COMMERCIAL DATA

ADVERTISING

There are very few newspapers either in Arabic or in European languages in circulation in Spanish Morocco and Tangier, and other advertising has been limited to the casual billboard variety

INSTALLMENT SELLING

Business in automobiles is usually conducted on the basis of cash against documents, but the services of finance companies are utilized in a few cases It is the custom of most dealers to carry the paper of the customer, and terms are sometimes offered at only 5 per cent of the value as down payment with the balance spread over 18 months Banks discount 4-months paper at a time, with renewal notices being arranged by reputable persons with sufficient credit standing

DEVELOPMENT OF FUTURE MARKET

With the development of the country, the automotive market will probably improve somewhat in the future, but its growth will be very slow Any increase of purchasing power rests on the further economic development of the Rif Further agricultural expansion is problematical on account of the barrenness of the country, the biggest possibility being the development of mining, which is dependent upon the introduction of foreign capital There is a need of concentrated sales efforts, consistency of program, and education to the value of modernization of merchandising methods The greatest problem is one of education with the object of demonstrating the value of American motor vehicles by reason of their longer life and in general greater service and economy per investment unit Retail selling methods could also be improved, as salesmen are not inclined to know their product perfectly, but depend upon a flow of oratory to convince their prospects There is no great energy expended in covering the prospects, and records of calls are not properly kept Instead of salesmen soliciting business, it is more customary for local dealers to wait until a prospective customer calls

ALGERIA

Somewhat smaller in area than Morocco, and under French jurisdiction since 1830, Algeria is considerably more developed and has more than 30,000 motor vehicles in use Unlike Morocco, it is a colony of France, within the French customs union, and consequently presents the same high-tariff wall to American cars as does the mother country

Algeria proper, consisting of a comparatively narrow strip extending more than 600 miles along the coast of the Mediterranean, has an area of about 80,000 square miles, to which must be added the South Territories comprising another 142,000 square miles, a total of 222,000 square miles According to the 1926 census, the population of Algeria was 6,064,865, of which about 1,000,000 were Europeans, the others consisting of Berbers and Arabs, together with several hundred thousand Jews A large proportion of these Jews, however, are more Europeanized than those of Morocco, with a consequent higher purchasing power The country is divided into three Departments—Algiers, Oran, and Constantine—named after the principal city in each Department These cities are the three main urban centers of the country—Algiers with a population of 226,218, Oran with 150,301 inhabitants, and Constantine with 93,373

Politically, Algeria is a part of France, whose language, tastes and customs predominate among the Europeans and greatly influence the natives, most of the Europeans in Algeria are French, but there are also about 150,000 Spaniards and 40,000 Italians The native Arabs and Berbers are, of course, of the Moslem faith

Agriculture predominates as the chief industry and is the principal source of wealth The principal products are wheat, barley, grapes (for wine), olives, and oranges Stock raising and mining are next in importance Agricultural products, wine, fresh fruit, vegetables, dates, animal products, minerals (like iron ore, phosphates, zinc, and lead), carpets, and olive oil make up the principal exports of the country About 76 per cent of Algerian foreign trade is with France, 4½ per cent with French Morocco, 3 per cent with the United States, and smaller amounts with Great Britain and Tunisia Manufactured goods comprise 70 per cent of the imports, and such items as cotton goods, machinery, automobiles, and wearing apparel take the lead Other important imports are sugar, rubber, coffee, coal, and gasoline Petroleum products, machinery, and agricultural implements are largely imported from the United States

There are three main agricultural regions, the rich coastal district, the plains in the interior districts, and the desert region There are numerous oases in the Algerian desert where the production of dates is very important

Purchasing power is very largely dependent upon crops The poor crop in Morocco in 1929 did not have its counterpart in Algeria, but although the Algerian crops in that year were good, certain difficulties arose in marketing them, which did not add to the general prosperity of the country Prices of these products were low, and the wine of the country came into competition with the French product Considerable money was tied up in crops as well as construction projects, with the result that credit and money, which up to the middle of 1929 had been easy, tightened up considerably Wheat is perhaps the most important crop, taking the country as a whole, with wine grapes next in importance, although in the Department of Algiers the growing of grapes takes first rank In the Department of Oran, wheat and cereals are far in advance of other crops, while the Department of Constantine is the poorest of the three from an economic standpoint

The standard of living in Algeria is higher than in Morocco, and the purchasing power, particularly of the natives, has been increasing rapidly in the past few years The European farmer is gradually migrating to the city, being replaced by the natives As an agricultural class, the Arabs and Berbers have been buying more and more foreign machinery and tractors The territory is, moreover, an excellent market for agricultural implements, and for a number of years it has been an important customer of American farm machinery

Ocean transportation facilities—An annual foreign trade of about $212,000,000 (5,400,000,000 francs) is conducted by water and by the railroads serving Algeria and connecting with Tunisia and Morocco, and from Algiers and other ports 10 passenger vessels depart weekly for Marseille, crossing the Mediterranean in about 26 hours There are also fairly frequent sailings to Spain, and one French line has a direct passenger service to and from New York, while a Japanese freight line affords direct communication between New York and Oran

Algiers, the logical point of entry serving the main market in Algeria, also has bonded-warehouse facilities for transshipment Most of the cars enter this territory through the port of Algiers, American cars coming boxed and French cars unboxed Unloading is done directly on the wharves and not by lighter Port facilities are being further increased, and present plans call for an extension to be completed by 1934 Some automobiles are also entered by way of Oran, chiefly for distribution in the Department of Oran and for transshipment from its bonded warehouses to Oudjda and the eastern Morocco district

DISTRIBUTION OF AUTOMOTIVE PRODUCTS

The city of Algiers is the main distributing point for automobiles and automotive products With the distributor in this city, the more important agentis should be located in Oran, Constantine, and Bone, while less important agencies should be established in Setif, Sidi-bel-Abbes, Tlemcen, Orleansvilles, and Batna In general, it would be poor policy to give an agent in Oran or Constantine the franchise for all of Algeria, inasmuch as Algiers has the largest companies, is centrally situated, and in every other respect is better as a distributing point Nor is it considered good policy to give the territory of Algeria to the distributor in Paris, who works this country through a subagent This policy, practiced by a few companies, has had poor results, and the makes involved do not get their fair share of the market It is also not considered good policy to appoint three distributors, one for each of the Departments, since the market for American cars is so small that no strong company would accept such a franchise if it were not given the opportunity to develop the entire country through its own subdealer organizations

IMPORT DUTIES AND INTERNAL TAXATION

As in France, the customs duties assessed on American passenger cars, trucks, and parts imported into Algeria amount to 45 per cent ad valorem, but, unlike France, no luxury tax is assessed In order to benefit by the minimum rate, American automobile products must go forward direct or via a French port, for goods transshipped at other ports are subject to the general rate of 180 per cent ad valorem Regulations for consular documents and fees are the same as for France.

In arriving at a basis of duty assessment, the value to be declared for the application of the customs tariff is the value of the merchandise in the place and at the time it is presented to the customs—a value about equivalent to the value of similar merchandise in Algeria less the import duty

Customs authorities have the right to value the car based on the value of a "similar" French car The latter system has been in force for some time, and will probably not be changed as long as the present ad valorem rates remain in effect In the practical application of this basis, the retail list price of a car is taken, minus the import duty, minus an arbitrary figure of two-elevenths of the remainder, the latter to account for the dealer's commission

Taxation of cars after they have been entered into the country is very reasonable, and not at all so drastic as in a number of European countries The circulation tax is insignificant, amounting to about 25 francs, or $1, a year There is, however, a tax on tires and gasoline The import duty on tires amounts to 3 francs a kilo , and there is, in addition, an internal tax on tires of 4 francs a kilo Tires shipped into Algeria usually have already paid the import duty in France, which is, therefore, not reassessed, but the 4 francs internal tax can not be paid until after the tires are entered into the country

The import duty on gasoline is 17 francs per hectoliter (1 hectoliter equals 26 4 gallons) An internal tax of 20 francs per hectoliter plus a 5 francs per hectoliter surtax is collected Briefly, the total amount of import duty and tax on gasoline is the equivalent of roughly 5 cents per gallon

HIGHWAYS

The administration of highways in Algeria is modeled after the French system, and, like France, its roads are subdivided into three categories, national, departmental, and communal Each of the political parts into which the country is divided finances its own construction and repairing, but the Departments and communes receive a subsidy for some of their most-traveled roads from the central Government Money is voted from the general budget, but a large part of the taxes on tires and gasoline is also used for the benefit of highways

The railway system of Algeria is much longer and better developed than the railway system of Morocco, and highways in Algeria do not constitute the only means of long-distance traveling as is the case in large sections of its neighboring country to the west Algeria has 3,325 miles of national roads, 41 miles of departmental, 6,066 of high roads, 4,932 of by-roads, and 7,207 miles of country roads, making a total mileage of 21,571 The roads, as a whole, are good, and the network is fairly complete Future efforts will in all probability be largely concentrated on improvements and repairs Particular attention is now being paid to the matter of surfacing and the straightening of some of the many hairpin turns to be found in the Atlas Mountain Ranges There is very little construction of new highways at present, nor is there a great need for new routes to be laid out, with the exception of the mountainous Kabylia district, where the natives are clamoring for more new roads but where construction is very expensive because of the topography of the country.

DEVELOPMENT OF MOTOR-BUS TRANSPORTATION

Motor-bus transportation has increased tremendously in Algeria during the past few years, and has developed along three well-defined lines—slow services for merchandise, "jitneys" carrying chiefly natives and parcel freight, and large fast busses used exclusively for passenger transportation The lines are in the hands of a large number of concerns and individuals and none of them cover the entire country or even a large part of the country, as is the case of the C T M in Morocco

Although development in this field of transportation has been very rapid, it is the opinion of some dealers that the number of these vehicles now in circulation is only about 25 per cent of the number that will eventually be employed

The largest of the operating companies has a complete service in the neighborhood of Algiers, but it does not extend a very great distance inland

Regular bus services have been maintained between the larger cities, especially those that had inadequate railway connections, for six or eight years, and a considerable number of these vehicles have been operated for the steadily increasing tourist trade All together, there are about 160 different lines in operation, using close to 1,000 busses

Most of the heavy busses in circulation are Berliet, Panhard-Levassor, and Rochet-Schneider, all French makes The Panhard Company enjoys a large share of the business, owing greatly to the fact that this company has made a special chassis for the North African market for the last 10 years, and for a number of years has concentrated its sales efforts through a well-developed dealer organization throughout North Africa Practically no American busses in this category have been sold, but a popular low-priced American make is enjoying an increasing business in the lower-priced bus trade There is no outlet at present for the larger American busses, but 1 and 1½ ton American truck chassis are in demand by individuals, mostly farmers, who live from 50 to 75 miles from an important city and who make a trip into town whenever they have collected a sufficient load of mixed freight and passengers

Bus lines have sprung up almost everywhere and have successfully competed with the railroads because of their cheapness and more frequent services, particularly between smaller urban centers

MOTORIZATION OF THE SAHARA

For centuries without change the camel has served as the ship of the desert With the penetration of the motor vehicle to all parts of the world, desert traveling has been made more comfortable and quicker Although the camel will probably never be entirely replaced, it is safe to say that established motor routes in desert stretches will rapidly increase

The Sahara Desert has felt the inroads of the motor vehicle A regular service of passenger cars across "the garden of Allah," as the Arabs affectionately call this vast territory, was begun in October, 1924 The route connected the southern points of Algeria with those in the northern region of French West Africa, and Colonb-Bechar, the present South Western Algerian Railway terminus, with the river Niger

The cars originally used in the conquest of the Sahara were 10-horsepower Citroens, equipped with track-laying treads similar to those used on tanks and some farm tractors A few years ago the Compagnie Général Transatlantique, a French company operating a chain of hotels and a service of auto tours throughout North Africa, employed specially made Renault twin-six-wheel cars to negotiate the sand dunes in order to provide tourist excursions to interesting southern and southeastern desert oases

These cumbersome-appearing cars have been very successful in crossing the sand and will probably remain the only means of quick motor transportation over this territory until a means is provided whereby stock cars can be utilized for this traffic

These cars are provided with 6 pairs of twin wheels, 12 in all, and are of 16 to 20 horsepower, French rating The seating arrangement of each type in use provides accommodations for 6 or 10 passengers, depending upon the size of the car A native guide is also carried Excessive speed could hardly be expected of a vehicle of this type, over a hard surface 20 miles an hour is the maximum, while in the dune country, where speed is out of the question, 75 to 85 miles is considered a good day's run

When these desert busses were first put in operation, a special device to enable them to extricate themselves from pockets between the sand dunes was included as necessary equipment The ascent was sometimes so steep and the sand so soft that in order to enable the car to obtain sufficient traction, this device, consisting of a metal hoisting drum, was fixed on the front axle From this drum extended about 60 feet of a strong steel cable, the other end of which was carried up to slopes of the next dune and fastened to a steel anchor driven into the sand This cable was then wound on the drum with power from the engine, and with this winding the car lifted itself to the top of the next dune This means of getting out of the greatest difficulty of desert traveling, although satisfactory, was considered cumbersome because of the weight of the apparatus, but the method has now been supplanted by specially made boards which are placed before the wheels when similar difficulties arise The improved plan, now in practical use on most of these vehicles, obviates the necessity of carrying several hundred pounds of additional steel

The specially built Renault desert cars are principally in operation south of Touggourt, connecting that city with El Oued and Tozeur in Tunisia, but they are also in operation south of Ghardaia

The drivers of these desert cars are carefully chosen for their skill, endurance, and mechanical ability, most of them are expert chauffeurs from France Each car is accompanied by an Arab guide familiar with the topography of the region to be traversed Inasmuch as sand storms change the entire aspect of the dunes during certain parts of the year, each car carries a tightly rolled tent and a week's supply of provisions, in case it gets lost

It is possible to traverse the distance from Touggourt to Timbuctu and other important desert oases in the south Sahara by ordinary stock cars, as the sand dunes can be evaded by striking west of Touggourt These journeys are, of course, expensive and can be undertaken only with a caravan of several cars The first time this trip was attempted was during the winter of 1922–23, when a fleet of Citroens made the 2,000-mile journey in 20 days

MARKET SURVEY

In 1928 Algeria enjoyed a period of prosperity such as it has not had for many years, and practically every line of endeavor was flourishing The trade in motor vehicles was similarly good, and this improvement extended well into 1929 Because of the high tariff, the American share of the market is small, but sales of American motor vehicles amounted to more than 1,000 units in 1929

According to certain well-informed persons, there are 20,000 potential car buyers in Algeria The country from a standpoint of tariffs and in respect to population being like a part of France, French car manufacturers have the same advantage of sentiment and freedom from tariffs that they have in their own country Taking these factors into consideration, the progress that American cars have made in the past years is satisfactory, and the situation bids well to continue to improve gradually, despite the fact that a large percentage of the car-buying public is French, having a tendency to favor French products The native, however, has no such prejudices, and although most cars are still sold to Europeans, the native purchasers are increasingly important They do not have the same sales resistance as the French and offer a very fertile field to the agents for American motor vehicles

The market future in Algeria is bright In the past few years American business in motor cars has increased about 40 to 50 per cent annually, and in 1930 it should increase between 50 to 60 per cent over 1929 if no complications arise

French companies, of course, have the bulk of the business Some of the more important companies, both passenger cars and trucks, like Citroen, Renault, Rochet-Schneider, Berliet, and Panhard-Levassor, have factory branches at Algiers and keep adequate stocks there With the exception of one or two of the large distributors of American cars, no American company maintains adequate stocks because of the small amount of business done

REGISTRATIONS, IMPORTS, AND SALES OF MOTOR VEHICLES

The number of motor vehicles in circulation in Algeria has more than doubled in the past four years It is estimated that in 1926 about 18,000 cars and trucks were in operation, while at the end of 1929 the total number was about 40,000, including 33,000 passenger cars, 6,000 trucks, and about 1,000 busses Of this number, about 18,000 were in operation in the Department of Algiers, 13,000 in the Department of Oran, and 9,000 in the Department of Constantine In addition, there are about 2,000 motor cycles in the country

Import figures of motor vehicles into Algeria do not give a true picture of the situation, inasmuch as many units are transshipped from France, and the statistics show these cars as coming from the mother country Customs figures are calculated primarily on a weight and value basis, but the following table shows the total number of automobiles imported between 1925 and 1928

IMPORTS OF AUTOMOBILES INTO ALGERIA

Year	Passenger cars		Trucks	
	French	Other	French	Other
1925	5,296	254	479	----------
1926	5,186	287	553	----------
1927	5,865	354	672	2
1928	8,817	524	----------	----------

A more accurate portrayal of the market is contained in the following table, showing sales figures of cars and trucks by Departments for the first 10 months of 1929

SALES OF AUTOMOBILES IN ALGERIA, FIRST 10 MONTHS OF 1929

Type and origin	Department of Algiers	Department of Oran	Department of Constantine	Total
Passenger cars				
French	4,000	2,707	1,567	8,274
American	400	307	100	807
Other	45	58	36	139
Total	4 445	3,072	1,703	9,220
Trucks				
French	756	408	237	1,401
American	122	90	57	269
Total	878	498	294	1,670
Grand total	5,323	3,570	1,997	10,890

With 10,890 cars and trucks sold in the first 10 months of 1929, it can be assumed that total sales for the year amounted to fully 12,000 units, of which about 10 per cent were American About 90 per cent of the "other passenger cars" are Italian Fiats With the exception of the French and American makes, there are practically no other trucks sold in Algeria

PASSENGER CARS

As the foregoing tables bear out, French manufacturers get a large proportion of the business, with American participation small but growing

The only other nation of importance in the car market is Italy, which sells several hundred Fiats Attempts to introduce the automotive products of other countries have not met with any success

Most of the passenger-car sales are in the low-price class, although some medium-price cars sell well Sales of high-priced cars have been fairly good, but customers for cars priced up to $5,000 have scarely been catered to, and in this price range more sales could probably be made, as the number of customers able to afford cars of this quality increase yearly

TRUCKS

About 20 per cent of the trucks sold in Algeria are heavy models with a capacity of 3 to 5 tons American trucks in this size enter but little in the market, most of this business being in the hands of Berliet Saurer, Latil, Panhard-Levassor, Somua, Unic, and Rochet-Schneider Of these makes, Berliet does about as much business as all of the rest put together There is a good market for these heavy trucks, as well as for trailers, on account of the wine crops The chief reason for the fact that American trucks can not compete, outside of price, is the matter of spare parts and service Practically all medium-price trucks are of French manufacture

The light truck is very popular, and an appreciable number of American vehicles in this category are sold annually Nearly all of the trucks are privately owned, used by contractors and by trucking firms to transport crops The principal demand is for light and medium duty units with a capacity of 1½ to 3 tons

USED-CAR SITUATION

The used-car problem is not so serious as in Morocco, and it is unusual to allow high trade-in values The problem has been chiefly solved by organizing a company in which various dealers are stockholders This association, founded for a specific purpose, handles nothing but used cars A dealer may bring his used car to the C A L A O (Centrale Algerienne de Liquidation d'Automobile d'Occasion), or if a customer brings in a used car as a trade in to the dealer, the latter calls up the C A L A O, which sends a man over to estimate the value of the car This company has fixed prices, based upon standard used-car price lists published in its monthly paper The dealer does business with the C A L A O on a basis of 10 per cent commission Usually there are three prices for each model, depending upon the condition of the car The company also publishes a barometer of percentage of depreciation from one month to six years This system of handling the used-car problem has been found very satisfactory

BODY BUILDING

All motor bus and truck bodies in Algeria are built locally, even for the French makes There are a few steel bodies built, but most bodies are of wood Taking all small firms into consideration, Algeria has about 25 body-building plants, although not more than 10 of these have any great production Outside of Algiers, where the industry is centered, there are perhaps an additional 20 body builders, all of which are quite small The bodies sell for about the same price as bodies in France, but are generally of inferior quality, particularly in workmanship

PARTS AND ACCESSORIES

Practically all parts and accessories are imported from France, with the exception of those replacement parts for American cars already in circulation Most of the garage owners have insufficient capital and usually deal through well-known Paris jobbing houses A great many local firms are one-man affairs, and they indent to Paris, buying a few lights, bumpers, etc , as needed Business in these products is a matter of local trade, and no modern promotion methods are employed

The average dealer, instead of going out and trying to sell his products, waits patiently until the customer comes in and asks for his requirements, upon which the dealer will order one or two samples from a Paris accessory house The chief demand is for bumpers and practical accessories if not too high in price Until this business is better developed, there is very little to hope for in this territory by American exporters

In looking for agents, American firms usually approach the already organized accessory houses, when it might be more advisable to find some young man with a little money and plenty of enthusiasm, even if he does not know a great deal about the automobile business, launch him, and follow up very carefully until he is familiar with the various details of the business This same procedure might also be applied in the establishment of automobile dealers

GARAGE AND SERVICE FACILITIES

Although garage facilities are slowly improving, there is generally no conception of adequate service, and dealers as well as car owners have not yet been fully educated in this direction One of the chief reasons for the lack of development and backwardness of this phase of the market is the lack of capital of most of the dealers and garage owners However, a few of the more important American companies, as well as Citroen, have taken a great interest in this problem, and are organizing better service facilities to uphold the reputation of their products

Although there is a market for all types of servicing appliances, manufacturers of these products must count on a certain unprofitable period of education before they can reap the benefits of their sales efforts A representative sent into this territory prepared to demonstrate the equipment would go far in creating a demand

MOTOR CYCLES

In 1928 there was a big increase in motor-cycle sales, but the market for these machines is now declining rather than increasing About 90 per cent of the machines sold are French, the only foreign make entering into competition being the British Triumph and Royal Enfield machines French motor cycles are priced as low as $125, and sales of the higher priced American makes, with corresponding high freight and duty charges, are impossible Altogether, there are about 2,100 motor cycles in operation in the country

COMMERCIAL DATA

MARKET PREFERENCES

About 80 per cent of the passenger cars sold in Algeria are closed models This is a comparatively recent change, as heretofore there was a strong preference for open models Five-passenger types are preferred, but cars for seven passengers have a steady demand The latter trade is chiefly in the hands of dealers of European cars The 7-passenger automobile in Algeria is usually not purchased as a luxury or for roominess, but because the native buyers have large families The question of price enters the 7-passenger car field in Algeria to a greater extent than in most markets

FINANCING

The matter of financing depends a great deal on individuals If a sound business proposition is offered it is not difficult to obtain the necessary financial support Until recently banks freely accepted automobile paper, but with tighter money conditions they are now accepting this paper only with the greatest reluctance Loans are usually made to dealers for 60 days at 8 per cent interest, but drafts are frequently renewed

Between 80 and 90 per cent of all cars are sold on time, with a down payment of 25 per cent of the purchase price and the balance in 12 to 24 months, however, in practice, time payments often extend over two and even three years, with frequent renewals

A few firms are very careful as to the financial responsibility of purchasers, but many others make only a cursory investigation of their clients Repossession is difficult, and if a man is declared bankrupt the debt on the car is combined with his other liabilities. However, the percentage of repossessions is very small, owing chiefly to the fact that dealers are lenient and extend notes until payment can be made

ADVERTISING

Both newspaper and billboard advertising is well developed. Several of the more important dealers of American and French cars engage in a considerable amount of advertising in both of these mediums, and some of the French companies, like Citroen and Renault, take an active hand in thus bringing their product before the eyes of the people The distributor of one large American company reserves 1 per cent of gross sales for advertising and in addition bills the subagent for three-quarters of 1 per cent, to be expended in local publicity channels under the control of the distributor Small dealers advertise regularly, but their companies, unwisely, have not held them to a set program An important element in advertising copy which ought to be of considerable help is the stressing of service facilities, providing, of course, such facilities are available. Citroen has already developed this argument in its advertising, and Renault is actively working in that direction

TUNISIA

Tunisia, with an area of about 48,300 square miles, approximately the size of Wisconsin, is the smallest and most eastern of the three countries included in this study It is still quite new compared to Algeria, and many parts of the interior are not yet well developed It has also the fewest inhabitants and the fewest motor vehicles in circulation of these three North African territories, yet many of the conditions and problems encountered in the automobile business in Tunisia are similar to those of Algeria and Morocco Although a French protectorate, Tunisia does not bear the same relationship to the mother country as the protectorate of Morocco, and it can be considered more as a colony of France, giving and receiving the same preferential treatment as Algeria on many items, including automobiles

The country enjoys a climate which is temperate in the north and subtropical in the south near the Sahara Of Tunisia's 32,000,000 acres, 30 per cent are mountains and 23 per cent desert, salt lakes, and waterways, and of a tillable area of 7,025,000 acres, one-third is under cultivation

According to the 1926 census, the population of the country was 2,159,708, of which approximately 7½ per cent were Europeans, including 90,000 Italians, 71,000 French, and 8,400 Maltese The economic status of the natives is very low, and, including Europeans, but 225,000 inhabitants enjoy modern standards of living The purchasing power of the Europeans is good, and that of the natives, although low, has been steadily improving This is reflected particularly in the increasing sale of agricultural machinery to native farmers Arabic is the national but French the commercial language, and business correspondence and advertising copy should be in French

Tunis, the largest city and chief seaport, has a population of approximately 185,000 Other important cities with their populations are Sfax, 28,000, Bizerte, 20,000, Sousse, 21,000, Kairouan, 20,000, and Gabes, 15,000 Sfax and Bizerte are seaports

The chief resources of the country are agriculture, mining, and stock raising The most important imports are textiles, manufactured goods, iron and steel, and foodstuffs Exports consist largely of phosphates, olive oil, wheat, esparto grass, barley, beans, sponges, and dates Tunisia is the leading exporter of phosphate of lime, and is next to the United States in its production

Tunis has 36-hour steamship connections with Marseille, three boats a week making the journey regularly There are less frequent services from Tunis, Sfax, and Bizerte with Itlay, Malta, Algeria, Tripoli, England, Belgium, the Netherlands, and Rouen, France There is a direct monthly service from New York to Tunis The interior of the country is comparatively well served by railroads, which had a length of 1,258 miles in 1926

The general customs tariffs of the country, though based upon the French system, are more moderate Rates apply equally to all goods but French, which enjoy free entry or lower rates for many commodities

MOTOR VEHICLE IMPORT DUTIES AND INTERNAL TAXATION

The import duties on motor vehicles entering Tunisia are 45 per cent ad valorem, the same as levied on automobiles entering Algeria and France Tunisian customs authorities, however, have sometimes refused to accept the declared invoice values of automobiles imported from the United States, but have now agreed to valuations accepted in France American motor-car manufacturers contemplating shipping to Tunisia are advised to have their agents in France procure letters from the French customs officials setting forth the valuation of the various models accepted by them This information should thereupon be forwarded to the Tunisian importers for presentation to the local director of customs

There is also an import duty on tires amounting to 2½ francs per kilo, plus an additional internal-revenue tax on tires of 6 francs per kilo

There are a large number of internal taxes, but although higher than those of Algeria, they are not as excessive as those enforced in France and other European manufacturing countries For example, one low-priced American car pays 185 francs tax per quarter In addition, there is a municipal tax of 300 francs per year These taxes together amount to about $40 per year Funds collected from this taxation are used chiefly for the repair and construction of highways.

The following Federal taxes are imposed on motor vehicles operating in Tunisia

	Francs per annum
Cars, trucks, and busses (minimum of 225 francs)	
For first 5 horsepower	45
Next 5 horsepower	55
Next 10 horsepower	65
Do	75
Each additional horsepower over 30	85
Motor cycle	18
With side car	36

These taxes are reduced by half in the case of (1) vehicles propelled by internal-combustion engines using gasogene or methylic alcohol, (2) vehicles which have come out of the plant more than nine years previous to January 1 of the taxable year Vehicles belonging to the Government are exempt

	Francs
Registration, annually	
Automobiles	100
Motor cycles	50
Driver's permit	65
Automobiles in transit over 8 days and under 2 months, each month	25

Municipalities of Tunisia also have their own schedules of taxation, in addition to the above-named Government taxes That for Tunis, the highest in the Regency, is quoted

	Francs per annum
Private cars	
5 horsepower	200
5 to 10 horsepower	250
10 to 15 horsepower	300
15 horsepower and over	600
Taxicabs (no car over 10 horsepower may be taxi)	400
For-hire cars (lined up in special street)	
Up to 15 horsepower	550
Over 15 horsepower	800
For-hire cars (kept in garages)	750
Trucks	800
Trailers	500
Motor cycles	120
With side car	200

HIGHWAYS

The state of highways in Tunisia is generally poorer than that of the highways of Algeria and Morocco There are a number of excellent roads leading out of Tunis, but 50 miles away from the capital city most roads leave much to be desired The highway system can be classified in three groups, main highways, numbered from 1 to 27, leading directly into Tunis, secondary highways, numbered from 31 to 111, connecting the main highways, and vicinal and colonization roads of regional interest There are about 7,081 miles of roads of all kinds in Tunisia, of which about 3,163 miles are macadamized, 155 miles are macadam surface treated, about 23 miles are of bitumnous concrete, and about 3,728 miles are of unimproved earth trails or "pistes" created merely by frequent passages on which some road work has been done at the worst points

The greater part of the roads in existence consist of gravel or ordinary macadam of an average width of 4 meters, but on certain vicinal roads the width is 3 meters and sometimes only 2½ meters Some sections near Tunis are constructed of concrete, but this type has not been in general use up to the present time The administration of all road building has been concentrated in the Tunisian bureau of public works. The regional roads are also under the supervision of the bureau, as there are no municipalities that undertake such work. The following table gives a comparison of the road budgets for 1929 and 1928.

TUNISIAN BUDGETS FOR HIGHWAY CONSTRUCTION AND MAINTENANCE

[In francs]

Item	1929	1928
Personnel	2,700,000	1,868,200
Subsidy from general budget	27,767,500	26,767,500
Subsidy from military credits	500,000	400,000
Interest charges and loans	3,600,000	1,500,000
Special credits	1,600,000	3,700,000
Circulation, tire, and gasoline taxes	7,250,000	4,010,000
Bond issue for road building	21,000,000	10,000,000
	64,417,500	48,245,700

REGISTRATIONS, IMPORTS, AND SALES OF MOTOR VEHICLES

It is estimated that about 9,900 passenger cars and trucks were in circulation in Tunisia on June 30, 1929, although cumulative registration figures on that date were 13,242. There are fewer trucks and busses in operation in Tunisia in proportion to the total number of motor vehicles registered than in any North African or European country, commercial vehicles not exceeding 10 per cent of the total.

Statistical data on registrations by districts are not available, as all motor vehicles for the entire country are registered in the city of Tunis, and there is no way to ascertain the percentage in the various districts.

The latest import figures available are those for 1928, when slightly more than 2,000 cars and trucks entered the country. In the first half of 1929, 1,400 automobiles were imported through the port of Tunis, through which practically all of the vehicles enter, showing a decided increase over the corresponding period of the previous year. The following table shows imports of motor vehicles into Tunisia by countries of origin.

IMPORTS OF MOTOR VEHICLES INTO TUNISIA IN 1928

Country of origin	Passenger cars	Chassis	Motor cycles
			Kilos
France	1,764	119	44,819
Italy	89	2	--------
United States	74	27	100
Other countries	4	3	3,125
Total	1,931	151	48,044

The following compilation of sales of automobiles, by months, shows more clearly the number of cars sold by each of the three principal competing nationalities. As this is being written, figures for only the first 10 months of 1929 are available, so figures of November and December of 1928 are added in order to complete the picture for an entire year.

SALES OF AUTOMOBILES IN TUNISIA FROM NOVEMBER, 1928, TO OCTOBER, 1929

Month	French	American	Italian	Other
1928				
November	174	15	12	2
December	159	13	6	1
1929				
January	245	24	14	
February	167	24	9	1
March	239	19	10	1
April	244	36	8	
May	251	39	14	
June	190	37	15	
July	160	43	18	
August	179	38	11	
September	160	32	7	1
October	190	40	13	1
Total	2,358	360	137	7

MARKET SURVEY

From 3,000 to 3,500 motor vehicles of all kinds are now sold annually in Tunisia, of which the American makes account for about 375 American cars have been in the market only about two or three years, and although sales thus far have been small, the total amount of business done has satisfied dealers According to present indications, motor-vehicle sales should increase from 10 to 15 per cent a year for the next few years, while the percentage of American sales should increase annually from 25 to 30 per cent over the previous year It is more important for American companies to have a strong distributor in Tunis then it is to have a large dealer organization throughout the country, inasmuch as 90 per cent of American passenger cars and 60 per cent of American trucks are sold in the capital

Even people in the interior usually come to Tunis to buy their cars Although the proportion of sales of French cars in the capital to the total for the entire country is smaller than the American, still about 50 per cent of all of the French cars and 30 per cent of the trucks are sold in the city of Tunis, either to residents of the city or to purchasers from the interior districts

Most of the American cars entering the country are transshipped from bonded warehouses in Le Havre, Bordeaux, and Marseille and enter through the port of Tunis

Next to Tunis, Sousse and Sfax are the most important cities in which it would be advisable to establish agencies Although there are more cars sold in Sfax than in Sousse, the latter city is the more important distributing center of the two, inasmuch as Sfax is at the egde of the desert and Sousse the center of a rich agricultural district The importance of Sfax has often been exaggerated because of the phosphate shipments that move through that port

Agricultural conditions have been very favorable for a number of years, and the prosperity of the country has been gradually increased, with a corresponding good effect on motor-vehicle sales

PASSENGER CARS

When the first automobile show was held in Tunis in November, 1926, only one American make was displayed Since then other makes have been introduced into the country, and at the present time most of the American manufacturers are represented During 1927, sales of motor vehicles progressed gradually, although there was a temporary setback toward the end of that year because of a failure of crops

Toward the end of 1927, difficulty arose for the first time in the disposal of secondhand cars, and as a result, many dealers found themselves financially embarrassed The tension in the automobile trade let up in the early part of 1928, and the second half of that year passed under the most favorable auspices, with sales very active and prospects for the 1928 crop the best in many years The import trend became heavier, and competition between American and foreign makes increased steadily Imports of motor vehicles rose from 100 a month throughout 1927 to 160 a month the first half of 1928, and 180 a month during the last half of that year

Competition between French and American makes was particularly keen in 6-cylinder models, many French manufacturers advertised extensively and attracted a certain clientele by their low prices The Italian Fiat also became an important competitor, particularly as the large number of Italians resident in the country had a certain sentiment toward the product of their country At the present time about 120 Fiats are sold annually, but sales of cars outside of French, American, and Italian makes are negligible Recently Mercedes Benz and Opel established agencies, but sales of these makes did not amount to more than a few units annually

At present about 30 per cent of motor vehicles are sold to natives, but this proportion will increase in the future Low-priced cars are the best sellers and rank, in the order of importance, as follows Citroen, Renault, Peugot, Fiat, and a popular American make

The used-car situation has improved somewhat during the past year, but still remains much worse than in Algeria There is no great collaboration on the part of dealers in the matter of prices or methods of disposal, nor is there any organization to handle the problem in an intelligent way Some lesser-known makes are practically unsalable as used cars because of the absolute lack of spare parts available

BUSSES

Because of the comparatively short distances and the development of railways, few busses are used in Tunisia Bus lines are operated privately on routes for which exclusive licenses are granted, and native Arabs are usually the only passengers About 100 busses cover the important routes In view of the unimportance of the market and the strong position of French manufacturers, the Tunisian market is not attractive to American bus manufacturers at the present time

Busses are used entirely by private operators, to run between various centers not served by railroads and a few of the important towns There are two large companies in the motor-transport field, La Tunisienne Automobile, in Tunis, which serves the north, and the Société des Transports d'Automobile du Sahel, located at Sousse These companies carry mail and are subsidized by the Government The Government does not permit competition with railroads, and licenses are contingent upon this restriction According to the terms of the agreement with the State, busses must provide seats for 22 passengers, and carry 1,000 kilos of merchandise La Tunisienne Automobile employs Delahaye busses exclusively, while the other company at Sousse started operations a number of years ago with a number of medium-sized American truck chassis with locally built bodies These were replaced later with French Latil busses

There are a large number of very small lines, usually private owners who operate one or two busses, competing with the railroad, carrying native passengers and freight to wherever it may be profitable to take them Some of these lines operate as outlaw organizations, having no authority nor license to engage in the traffic

Although there is practically no opportunity to expand the motor-transport business in long-distance hauls, there is a considerable future for suburban bus lines

TRUCKS

Although the standard of living of the natives of Tunisia is similar to that of Algerian natives, they own fewer motor vehicles and, as a class, stand out as the greatest potential buyers of motor vehicles, particularly trucks, in the country Up to the present time the proportion of truck sales in Tunisia to the total number of motor vehicles sold has been much smaller than elsewhere Of the 3,000 automobiles sold annually in Tunisia, not more than 250 are commercial units, of which about 100 are of the medium and heavier types The railroads are well developed, and farmers transport their goods by railways or hire trucking companies With the gradually increasing prosperity, however, it is expected that the truck market among the agricultural class will improve more rapidly in the future Most of the commercial units are sold in the north, in the richer and better-developed agricultural districts That section of the country is in a better position economically than the south, owing to more diversified farming

The new demand for trucks has seemingly already started, and imports of these vehicles increased perceptibly in the first half of 1929 France dominated almost exclusively in the heavy and medium models, but American light-weight models find a certain outlet The good reputation enjoyed by the heavy French trucks, protected by the 45 per cent duty, has made foreign competition difficult

The continual expansion of the road system, mounting freight rates, and the gradual adoption of modern farming methods should tend to increase truck sales The ratio demand according to capacity is estimated at 40 per cent for the 1 to 1½ ton model, 20 per cent from 2 to 4 tons, and 40 per cent of the heavier models

There are two body-building plants of importance in Tunisia, although a number of smaller companies make a few bodies annually Light truck bodies are usually imported with the chassis from France, but heavier types are all made locally Body building in general is more expensive than in Algeria, and such French manufacturers as Citroen and Peugeot send chassis equipped with bodies from France The advantage to the buyer is that he does not have to wait long for his body, and the price is not very much higher than for the local product Some dealers are considering importing all of their truck bodies from Marseille

PARTS, ACCESSORIES, AND SERVICE APPLIANCES

Citroen is the only company that has a branch in Tunisia, and keeps a large stock of parts available in its warehouse for dealers Service facilities, in general, are no better than in Morocco or Algeria, and a great amount of work still remains to be done in introducing necessary appliances

Replacement parts come almost invariably from France, except for American cars Such items as American spark plugs, brake lining, and lamps, however, might be introduced if the market were properly canvassed and liberal inducement made to dealers American products enjoy an excellent reputation and have possibilities for expansion in the growing market

Accessories have a small demand, but those advertised in leading French trade papers are likely to find quicker popularity if not priced too high

MOTOR CYCLES

With less than 900 motor cycles in operation, France dominates the market for these machines, the low-priced, low-powered types being in demand Total sales of these machines amount to not more than a few hundred annually

SALES PROMOTION

ADVERTISING

Most of the larger French companies, particularly Citroen and Renault, advertise considerably Fiat and two popular American makes also use this means of sales promotion in bringing their product into public notice Other American manufacturers advertise but little

Newspaper publicity sent out by the factory is often unsuitable, and does not always make the proper appeal to the Tunisian public

A leading paper, La Depeche Tunisienne, with a circulation estimated at 30,000 to 35,000, carries most of the press advertising of automobiles Billboard advertising is also used, the current charge for one board being about 4,000 francs per year A new high tax on billboards, which became effective on January 1, 1930, may lessen their use

FINANCING

The percentage of motor vehicle sales on credit is greater in Tunisia than in any other North African country, amounting to between 90 and 95 per cent of the total, with an average down payment of only 20 per cent and the balance over 18 months Natives always buy on credit and usually take longer in paying than Europeans Even if they are wealthy, the custom of credit is so firmly ingrained upon them that they may take as much as 2 and 3 years to liquidate the debts on their cars Banks accept the papers of the dealers with reluctance and charge from 10 to 12 per cent interest It is estimated that dealers' losses on credit sales amount from 4 to 6 per cent This is a higher percentage than in either Morocco or Algeria

The habit of long credits has so permeated the country that even repair work and about 75 per cent of the gasoline is sold on credit, sometimes up to six months

U. S. DEPARTMENT OF COMMERCE
R P LAMONT, Secretary
BUREAU OF FOREIGN AND DOMESTIC COMMERCE
WILLIAM L COOPER, Director

GERMAN CHEMICAL DEVELOPMENTS IN 1929

Trade Information Bulletin No 690

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FOREWORD

German chemical production in 1929 was estimated at approximately 4,000,000,000 marks—almost $1,000,000,000 About one-fifth of the total production was accounted for by artificial nitrogen carriers and one-eight by dyes While the 1929 production was an increase over that of 1928, the increase was not as great as in former years. It is believed that the present production is about equal to the demand

German chemical exports in 1929 were higher than ever before, being valued at about $327,000,000 Imports were valued at $75,000,000, leaving a favorable balance of $252,000,000 in the country's chemical trade

Conspicuous technical progress was made throughout the year in the German chemical industry, especially in nitrogen fixation, hydrogenation of oil, and fine-chemical preparation Concentration and rationalization were factors contributing to the higher profits realized The dye trust continued to extend its international affiliations and penetrated foreign markets to an even greater extent than before

This publication is the fourth report on German chemical developments, similar reports having been published annually since 1926 Other bulletins have been issued on the chemical industries and trade of France, Great Britain, Italy, and Switzerland The Chemical Division of the Bureau of Foreign and Domestic Commerce will welcome inquiries from American firms for more specific information on any of the subjects covered in these bulletins.

WILLIAM L COOPER, *Director,*
Bureau of Foreign and Domestic Commerce

APRIL, 1930

GERMAN CHEMICAL DEVELOPMENTS IN 1929

By William T. Daugherty, American Trade Commissioner, Berlin

GERMAN CHEMICAL INDUSTRY AS A WHOLE

Though German chemical production, as a whole, was not less in 1929 than in previous postwar years, it did not show so great an increase as in former years. The apparent reason is that a saturation point is near attainment in German chemical production. The case of chemical-fertilizer production (fixed nitrogen and potash), by far the leading item of German chemical output, is representative, though increased, the gain was not so marked as formerly, since agriculture in Germany and elsewhere was somewhat depressed in 1929.

German chemical production in 1929 could probably be valued at around 4,000,000,000 marks (equivalent to almost $1,000,000,000). Of course, there still is lacking a definite limit as to what constitutes chemical production, and consequently this presentation is based upon a list of what the German Union for Chemical Promotion preferred to list as chemicals as submitted by that body to the World Economic Conference in 1927.

Out of its reported 4,000,000,000-mark chemical production, about 20 per cent (a maximum of 800,000,000 marks) may be credited to the artificial nitrogen carriers, 12 per cent (maximum 480,000,000 marks) to dyes, and 5 per cent (200,000,000 marks) to rayon. The value of Germany's potash and by-product output probably exceeds the rayon figure by at least 50,000,000 marks, while that of pharmaceutics is believed to be 200,000,000 to 300,000,000 marks.

While the German Union for Chemical Promotion estimated in 1927 a figure of 3,000,000,000 marks as representing the value of chemical production in 1924, it makes available further estimates for 1927, giving German chemical production then a value of 3,600,000,000 marks. It is interesting to compare these totals with the corresponding pre-war (1913) figure of 2,400,000,000 marks.

The following table shows the estimated world chemical production in 1913, 1924, and 1927.

ESTIMATED VALUE OF WORLD CHEMICAL PRODUCTION

[In million of German marks]

Country	1913	1924	1927
United States	3,400	8,400	9,450
Germany	2,400	3,000	3,600
Great Britain	1,100	6,400	2,300
France	850		1,500
Italy	286		730
Japan	150		550
Canada	120		540
Belgium	250		450
Netherlands	150		350
Switzerland	170		320
Sweden	110		200
Norway	100		85
Other countries	750		1,700
Total	9,836	17,800	21,775

The value of the world's production of heavy chemicals excedes any other single group, in 1913 it was estimated at 2,600,000,000 marks and in 1927 at 7,500,000,000 marks. Pharmaceutics production is next in value, with 1,750,000,000 and 3,000,000,000 mark estimates, then mineral and coal-tar colors, 1,500,000,000 and 2,500,000,000 marks, rayon, 250,000,000 marks and 2,000,000,000 marks, contained nitrogen, 1,000,000,000 and 1,500,000,000 marks, cosmetics and perfumes, 500,000,000 and 1,500,000,000 marks.

GERMAN CHEMICAL EXPORTS

Germany exports about one-third by value of its chemical production, importing about one-twelfth this amount, of which about $20,000,000 worth originates in the United States. In 1929 (within the limits of its insufficiently listed chemical foreign-trade group) its exports were valued at 1,374,543,000 marks against corresponding imports valued at 316,019,000 marks, a favorable balance of 1,058,524,000 marks. While the German foreign-trade classifications of chemicals, as noted, are not exactly sufficient, in a sense they afford a basis of comparison for a series of years. Such a comparison shows increasingly favorable trade balances, adding to the country's economic wealth. In respect of this favorable trade balance, the German chemical industry may be considered the third export-excess industry, after iron and steel, which ranks first, and machinery, ranking second.

It might be noted that while German chemical exports in 1913 were 9 per cent of the country's total exports (and chemical imports 4 per cent of the total), 1929 chemical exports reached around 11 per cent of the total and imports 2.4 per cent.

GERMANY'S FOREIGN TRADE IN CHEMICALS

[In marks]

Year	Imports	Exports	Excess of exports	Year	Imports	Exports	Excess of exports
1913	441, 690, 000	956, 111, 000	514, 421, 000	1927	272, 265, 000	1, 189, 927, 000	917, 662, 000
1924	144, 767, 000	580, 544, 000	435, 777, 000	1928	311, 518, 000	1, 314, 588, 000	1, 003, 070, 000
1925	211, 172, 000	897, 723, 000	686, 551, 000	1929	316, 019, 000	1, 374, 543, 000	1, 058, 524, 000
1926	198, 740, 000	994, 256, 000	795, 516, 000				

PRICE LEVELS

According to W. Roth, of "Chemiker Zeitung" (Coethen, Anhalt), the price level of German chemicals in 1929, though above 1913, was well below the average general index of other goods. On the basis of a 1913 index of 100, German chemical prices were 119, against a general index of 150. Roth claims the current chemical price index in Germany is lower than elsewhere, as in France it is 120, in Great Britain 144, and in the United States 135. The lower German level is, of course, caused in part by the drop in prices of fixed nitrogen, the latest decline having been effected July 1, 1929.

PROFITS

Concentration and rationalization in the German chemical industry, as in other industries, has contributed to increased profits. So have the workings of the international cartels, among which those affecting nitrogen, potash, and dyestuffs are outstanding. The

German Union for Chemical Promotion, in its latest calculations on average profit showing, figures that 112 representative German chemical corporations averaged a 9 9 per cent dividend on their 1928 business, against 9 4 per cent in 1927, 6 6 per cent in 1926, and 6 6 per cent in 1925 The average is increased by inclusion of the German dye trust, which paid 12 per cent the last two years Excluding the dye trust from the calculations, representative other German chemical corporations averaged 7 1 per cent in 1928, 6 8 per cent in 1927, 3 7 per cent in 1926, and 3 1 per cent in 1925

TECHNICAL PROGRESS

Conspicuous progress, as will be discussed later, has been noted in new processes, notably in the Ruhr district, fixing nitrogen synthesized with hydrogen separated from coke-oven gas by employment of the Bronn-Linde-Concordia process of liquefaction Though production so far is quantitatively small when compared with that of the existing Haber-Bosch dye-trust plants, controlling some 70 per cent of a total German production of about 800,000 tons of contained nitrogen a year, the Bronn-Linde separation marks a new epoch in the industry Concurrence of methane and other components of this coke-oven gas provides an object of research, notably at the Kohlenforschungs Institut at Muehlheim, seeking to convert methane, for instance, to light oil and acetylene

Further reference will be made to the German dye trust's process of hydrogenating crude oil for a better quantitative and qualitative yield

Another step in progress may be evident in local efforts to ship, in steel bottles, liquefied oxygen instead of the compressed gas, as recently proposed by Doctor Heylandt, of Berlin, before a meeting of the German Acetylene Union

Siemens & Halske, Berlin, expects to cheapen production of beryllium for light metal alloy, having produced 1 ton of beryllium metal in 1929

Progress will be noted in a later section in production by the potash works of chemical salts by elimination and recovery of valuable wastes not utilized heretofore

Use of comparatively expensive sulphuric acid is spared in certain new ammonium sulphate processes, the Tern and C A S processes

Mention might be made of progress in preparation of fine chemicals, in producing better and cheaper such products as adipic acid, acridin, etc of work on parahydrogen (Hans Fischer, Munich), and of the production of the new element, rhenium (J and W Noddack)

INTERNATIONAL AFFILIATIONS

Though special discussion is made later in this report of the international penetration of the German dye trust, mention is made here of affiliations by some other German chemical companies abroad

Chemische Fabrik in Billwaerder vorm Hell & Sthamer A G, Hamburg, raised its capital to 5,500,000 marks, employing 1,500,000 marks to associate with the Norwegian Jan Kemisk Fabrik A G of Frederikstad

German Solvay Works acquired all shares of the Werrawerke A G, Buchenau, from the French St Gobain group

British Bemberg (Ltd), capital £1,350,000, was founded by the I P Bemberg A G , of Barmen

Vereinigte Glanzstoff Fabriken (rayon), Elberfeld helped build the first Rumanian rayon plant at Komorn

Gebr Gutbrodt G m b H , Frankfort on the Main, with certain Hungarian interests, founded Elektrotechnische und Farbenindustrie, Budapest, building a power plant at Var-Palota and using part of its current to process coal-distillation by-products

German interests are included in the foundation in Glarus, Switzerland, of Compagnie Générale de Destillation et Cokefaction a Basses Temperatures et Minière, capital 1,000,000 Swiss francs

Holzverkohlungs-Industrie A G , Constance, erected in England with Distillers Co (Ltd), Edinburgh, a plant producing acetic acid and acetone

German investors share in the foundation of S A des Gaz Industrielles, Brussels, capital 8,000,000 francs

Gebr Gutbrodt G m b H and the Swiss Durand & Huguenin founded Chemietrust A G Schaffhausen, capital 20,000,000 francs, a holding company

Bituma Bergbau & Chemische Industrie A G , Carlsbad, capital 800,000 Czech crowns, is a new organization shared by the Bohemian Union Bank and the German dye trust, through the latter's affiliate, Riebecksche Montanwerke A G , Halle, Saale The Czech portion of the organization was formerly Bituma Chemische Industrie G m b H

GERMAN DYE TRUST

PENETRATION INTO THE UNITED STATES

When the German dye trust (I G Farvenindustrie A G , commonly referred to as I G) announced, on April 26, 1929, its foundation of the American I G Chemical Corporation, issuing $30,000,000 guaranteed 5½ per cent convertible debentures, it founded its second holding company abroad in connection with its extensive international penetration It has just previously (1928) founded a holding company in Switzerland, I G Chemie Basle, whose capital was raised in January, 1929, to 250,000,000 Swiss francs common stock

I G CHEMIE BASLE

While the American I G Chemical Corporation may be viewed as holding certain of the I G 's investments in the United States (although its charter is elastic enough to contemplate pooling conceivable interests "elsewhere") International Co for Chemical Enterprises (Inc) (Internationale Gesellschaft fuer chemische Unternehmungen A G), referred to popularly as I G Chemie Basle, may be considered a European prototype It was founded in June, 1928, with a 20,000,000 Swiss franc capital, being raised to 250,000,000 francs common and 40,000,000 francs preferred stock by approval of the I G administrative council meeting on January 31, 1929 This company calculates to hold ex-German securities, as the I G 's share portfolio of Norsk-Hydro, of Oslo (nitrogen fixation), and other European investments—as doubtless the German trust's 50 per cent investment in the Spanish Societe Nacionale, 50 per cent of the Dutch International Bergin company (coal hydrogenation), 30 per cent of British Breda (rayon), Swiss Durand & Huguenin (colors), 25 per cent of Swiss Philana company (wool-finish process applied to cotton), etc

The official communique resulting from the above-mentioned meeting forecasts the acquisition of further holdings Certain guaranties are provided for, as, for instance, the same dividend as paid by the German I G , with rights to exchange I G Chemie shares for those of the dye trust with certain privileges

INTERNATIONAL AGREEMENTS

With continued expansion of its international interests in 1929, the German dye trust was signatory to two important international cartel agreements during the year One was the international nitrogen pact between the German nitrogen syndicate, Imperial Chemical Industries (Ltd) of London, and Chilean nitrate producers, into which the Norsk-Hydro was drawn subsequently The other was the Franco-German-Swiss dye pact, an extension of a previous Franco-German understanding reached in 1927

Announcement of the international nitrogen pact was forthcoming on June 26, 1929, in the usual insufficiently informative communique to the effect that the nitrogen interests involved were to cooperate, particularly along the line of common propaganda This pact may be interpreted as result of threatened overproduction of nitrogen, and being a more or less forced measure as far as Germany is concerned, as previous efforts to associate with Chile were fruitless The agreement so far is essentially one involving at least price uniformity, although it can not be established as yet that a definite production allocation division is to be effected Coincident with the conclusion of this pact, nitrogen prices were dropped effective July 1, 1929

The pact covers 80 per cent of world production of nitrogen, probably divided as follows Germany, 800,000 metric tons contained nitrogen, Chile, 500,000 tons, and Great Britain, 250,000 tons Norsk-Hydro proposes to produce 90,000 annually

Details are not released concerning the Franco-German-Swiss dye pact, but it may be viewed primarily as a price convention, though German sources deny that market allocation is involved, as was reported from other quarters The pact was extended to afford France (Kuhlmann Co) certain German dye-trust processes, and it envisages certainly a minimization of competition between the contracting parties, at least in halting, to some extent, intertrading in competitive dyes It aims also to economize on distribution by certain consolidations of sales agencies abroad In this connection, it has been estimated that distribution costs of dyes amount to about 30 per cent of total costs

Dyestuffs production of the three countries in the contract was estimated at the time at about 75,000 metric tons by Germany, 15,000 to 20,000 tons by France, and 10,000 tons by Switzerland

FINANCIAL DEVELOPMENTS

In current quarterly reports on its progress, the German dye trust indicates it will show no smaller profits on its 1929 operations than a year before It paid a 12 per cent dividend for the previous two years, and registered a clear profit of 118,458,000 marks for 1928 business on its common stock-capital of 960,000,000 marks, but with an additional 100,000,000 marks Series A preferred shares and 40,000,000 marks series B preferred This was 17,646,000 marks more than the corresponding 1927 net profit, but the reserves and pension fund were strengthened with the excess profits

Latest available figures on the German dye trust's financial status include the following items

FINANCIAL STATUS OF THE GERMAN DYE TRUST

[In marks]

Year	Gross profits	Costs	Amortization	Net profits
1928	257, 140, 000	51, 900, 000	71, 770, 000	118, 460, 000
1927	224, 300, 000	48, 750, 000	74, 740, 000	100, 810, 000
1926	186, 000, 000	42, 100, 000	75, 200, 000	68, 700, 000
1925	168, 500, 000	45, 200, 000	55, 700, 000	67, 600, 000

PRODUCTION

Despite the strained economic situation that prevailed in Germany during 1929, due partly to cessation of American loans, reparations policy discussions, etc , the German dye trust issued occasional statements to an alarmed investing public that its production along all lines was no less than a year before, and that the comparatively low level of its stock quotations was effected by influences beyond its province and not by its own internal condition Alarm was aroused in the early fall of 1929, for instance, by reports of overstocks of fixed nitrogen in dye-trust silos and by the dismissal of labor crews The amount of nitrogen stocks, though production is threatening saturation, was doubtless a normal phenomenon, as stocks are piled up for unloading during the late fall and winter months for oversea shipments to meet the following spring's fertilizing The dismissal of labor crews was natural, in connection with completion of some extensive building operations at I G plants during the period of rationalization that is now about ended I G labor declined from a peak of 117,213 by 6,237 by September 1, 1929 It remains to be seen, however, what increased turnover and profits, if any, the I G will show on its 1929 operations

Though the I G withholds its production figures, a probable round estimate of output of certain of its leading items would be as follows

ESTIMATED 1929 GERMAN DYE TRUST PRODUCTION OF STAPLES

Commodity	I G production		Total German production	
	Metric tons	Marks	Metric tons	Marks
Fixed nitrogen	650, 000	560, 000, 000	800, 000	700, 000, 000
Dyestuffs	75, 000	350, 000, 000	75, 000	(1)
Pharmaceutics	4, 000	80, 000, 000	10, 000	200, 000, 000
Rayon	6, 600	46, 000, 000	25, 000	160, 000, 000
Synthetic gasoline	100, 000	40, 000, 000	[2] 100, 000	(1)

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[1] Not available

[2] Production of a Bergius plant in the Ruhr, at Duisburg, Meiderich, was suspended after an explosion June 28, 1929

The value of the German dye trust's total production may be roughly placed at about one-third of total German chemical production, valued at around 4,000,000,000 marks

Its more or less market-saturating production of dyestuffs permitted a net export of 38,914 metric tons in 1929, against 42,606 tons in 1928, and 44,171 tons in 1927 A special 1929 development was improvement of the napthol A/S series for dyeing acetate rayon The following table shows German foreign trade in dyes

GERMAN FOREIGN TRADE IN DYES

Item	1927	1928	1929	
			Amount	Value
	Metric tons	*Metric tons*	*Metric tons*	*Marks*
Exports				
Aniline	29,735	30,651	27,477	141,587,000
Alizarine	3,088	2,180	2,651	33,041,000
Alizarine red	975	2,357	1,879	3,658,000
Indigo	14,301	11,970	10,946	25,400,000
Indigo carmine	704	153		
Total	48,803	47,311	42,953	203,686,000
Imports	4,632	4,705	4,039	21,295,000
Net exports	44,171	42,606	38,914	182,391,000

The I G may be figured as producing some 40 per cent of Germany's total pharmaceutic production The mid-June issue of Chemisch-Technische Zeitschrift (Berlin) values the latter, however, at 300,000,000 marks, with a retail value of about 630,000,000 marks This authority estimates the division of German pharmaceutic production as follows

	Marks
I G Farbenindustrie A G, Frankfort on the Main	80,000,000
Six next producers (8,000,000 marks each)	48,000,000
Medium and small producers	180,000,000
Total	308,000,000

The I G 's synthetic gasoline plant at the Leunawerke, Merseburg, raised production to about 300 tons daily in 1929 This operation involves the catalytic pressure treatment of lignite and lignite tar The lignite is milled, mixed with oil from the process to a fluid state, then hydrogenated catalytically under 200 atmospheres pressure at 500° C Ten per cent of the insufficiently hydrogenated mass returns to the process cycle The synthetic gasoline so produced is now on the market under a trade name

The I G 's share of German rayon production may be compared with that of all German rayon factors, as shown in the latest available (1928) figures

	Kilos
Vereinigte Glanzstoff and subsidiaries	9,000,000
German dye trust and subsidiaries	6,600,000
J P Bemberg and subsidiaries	2,800,000
Fr -Kuettner	1,500,000
Other companies	1,400,000

The I G 's Leunawerke, producing Haber-Bosch synthetic ammonia and synthetic gasoline, also produces synthetic methanol, a product that came on the market about 1923 This catalytic pressure synthesis combines carbon monoxide annd hydrogen to pure methanol It is believed that the I G Leunawerke is producing 60 metric tons of this methanol daily, and has a capacity of 100 tons At this rate the works are producing nearly 20,000 metric tons annually, which, with output of the wood-distillation factors, Holzverkohlungs-Industrie A G, Constance, and Verein fuer chemische Industrie, Frankfort on the Main, permitted a 1929 export of 16,034 metric tons, against 12,563 tons in 1928, and 13,180 tons in 1927, of which 1,112 tons, 535 tons, and 4,519 tons, respectively, were shipped to the United States

ELECTROCHEMICALS AND COAL-TAR DERIVATIVES

German official statistics are rather sparing in giving estimates of chemical production, and those offered are generally related to Government control or taxation, such as alcohol, acetic acid, sulphuric acid, salt (sodium chloride), etc Another range of products is cartelized in respective selling associations generally, but it is rather the exception than the rule that the cartels release their estimates of production

Two of the most extensive sets of estimates that were published in 1929 relate to electrochemical products and to coal-tar derivatives The estimate of electrochemical production originated with Doctor Hess, general manager of the Dr Alexander Wacker Co of Munich, who offered it in connection with an address made at Hamburg in December, 1928

This set of figures, comparing German with world production, is the first of its kind that has been published, at least in the postwar period

GERMAN ELECTROCHEMICAL PRODUCTION AND CONSUMPTION IN 1927

Item	German production	Electricity consumed in German production	World production	Electricity consumed in world production
	Metric tons	*Kilowatt hours*	*Metric tons*	*Kilowatt hours*
Aluminum	27,000	675,000,000	206,000	5,150,000,000
Carbide (except cyanamide)	170,000	550,000,000	610,000	2,000,000,000
Cyanamid, primary nitrogen	85,000	935,000,000	188,000	2,250,000,000
Synthetic ammonia				
Water generator gas pressure synthesis [1]	486,000	1,000,000,000	528,000	1,100,000,000
Coke oven gas pressure synthesis [1]	2,000	6,000,000	32,000	106,000,000
Electrolytic hydrogen pressure synthesis [1]	2,000	40 000,000	48,000	860,000,000
Nitric acid (air) [1]	2,000	140,000,000	40,000	2,800,000,000
Oxygen, compressed	[2] 30,000,000	45,000,000	[2] 150,000,000	210,000,000
Oxygen, used direct	[2] 35,000,000	35,000,000	[2] 100,000,000	100,000,000
Chlorine	100,000	330,000,000	370,000	1,250,000,000
Caustic soda (electrolytic)	110,000		410,000	
Hydrogen peroxide	2,000	50,000,000	3,000	100,000,000
Phosphorus	30,000	300,000,000	33,000	330,000,000
Ferro-silicon	20,000	120,000,000	200,000	1,300 000,000
Ferro-alloys [3]	[4] 3,000	[4] 20,000,000	100,000	600,000,000
Carborundum	[4] 600	[4] 7,000,000	6-8,000	80,000,000
Electrographite	[4] 5,000	[4] 50,000,000	25,000	250,000,000
Electrocorundum	[4] 10,000	[4] 40,000,000	40,000	160,000,000
Magnesium	[4] 1,800	[4] 36,000,000	2,000	40,000,000
Sodium	[4] 10,000	150,000,000	25,000	375,000,000
Electrozinc	100	400,000	230,000	900,000,000

[1] In terms of fixed nitrogen

[2] Cubic meters

[3] Ferrochromium, ferrotungsten, ferromolybdenum, ferromanganese, silicon, aluminum ferrosilicon, and ferromanganese

[4] Uncertain estimates

The following figures, covering production of coal-tar derivatives in Germany, were prepared and published by the Federal Statistical Office and are the latest available

CONSUMPTION AND PRODUCTION OF GERMAN COAL-TAR DISTILLATION PLANTS

Item	1913	1927	1928	
			Amount	Value
CONSUMPTION				
Raw materials	*Metric tons*	*Metric tons*	*Metric tons*	*Marks*
Coal tar, total	1 224 606	1,429,630	1,498,646	93,622,000
Coke-plant tar		1,183,216	1,234,886	73,777,000
Gas-house tar		237,573	255 840	19,199,000
Half fabricates, total	97,104	93,299	114,127	17,845 000
Crude benzols		25,275	36,952	8,190,000
Heavy oils		29 037	37,246	5 054,000
Light oils		6,609	8,449	943,000
Crude naphthalene, etc		14,075	18,239	1,656,000
Crude phenols		1,204	1,619	788,000
Other products, including—				
Crude pyridines		17,020	11,622	1,214,000
Gas (ammonia) water	1,040	430	348	139,000
PRODUCTION				
Tar pitch	609,179	659,327	691,346	43,690,000
Prepared tar, etc	107 845	220,863	243,901	24,211,000
Heavy coal-tar oils	401,610	427,052	431,931	53,662,000
Naphthalene	50,422	42,638	49,058	7,108,000
Crude and pure anthracene		12 050	12,389	1,960,000
Pyridine bases		727	649	755,000
Phenol, crystalline	7,406	3,441	3,8[illegible]	4,024,000
Cresols		8,257	8,140	4,324,000
Crude phenols (for sale)		423	1,582	392,000
Crude and pure benzol	15,795	24 042	30 750	9,136,000
Toluol		1,581	2,031	775,000
Xylol	5,250	6 665	7 280	1,869,000
Cumaron rosins		1,644	2,530	853,000
Other products		25,101	27,974	2,992,000
Ammonia water under 10 per cent NH_3		11,003	10,690	85,000
Ammonium sulphate		1,063	1,820	196,000
Sal ammoniac spirits		931	699	124,000

PRODUCTION OF GERMAN LIGNITE-TAR DISTILLATION PLANTS

Item	1926	1927	1928	
			Amount	Value
CONSUMPTION	*Metric tons*	*Metric tons*	*Metric tons*	*Marks*
Lignite tar	181,465	192,155	188,831	16,419,000
PRODUCTION				
Total	162,064	160,493	171,754	28,778,000
Gas, fuel, motor solar, and paraffin oils	114,671	111,862	115,161	15 596,000
Lubricants	1,127	813	838	188,000
Gasoline	4,854	6 086	7,590	2,041,000
Paraffin	16,752	16,053	17,494	8,650,000
Other products, as creosote oil, pitch, etc	24,660	23,564	26,018	1,762,000

MISCELLANEOUS PRODUCTION FIGURES [1]

Other selected annual production figures include (in alphabetical order) Acetic acid, 21,239 metric tons, alcohol, 3,237,046 hectoliters, benzol, 350,000 metric tons, camphor (synthetic), 7,000 metric tons, essential oils, 1,000 tons, glycerin 12,000 tons, hydrochloric acid, 250,000 tons, lime acetate, 10,000 tons, limestone, 12,430,000 tons, nitric acid, 85,000 tons (dye trust production), pyroxylin plastic, 12,000 metric tons, salt (sodium chloride), 2,909,400 tons, soda ash, 1,000,000 tons, and sulphuric acid, nearly 1,600,000 tons monohydrate.

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[1] A more extensive treatment of German chemical production figures was given in Trade Information Bulletin No 605, German Chemical Developments in 1928

GERMAN ARTIFICIAL FERTILIZER CONSUMPTION

Germany applies more artificial fertilizer to its agricultural soil than any other country of equal size in the world. It is true that the Netherlands and Belgium fertilize somewhat more intensively, but their areas are not comparable with that of Germany—some 30,000,000 hectares of arable soil.

Whatever records Germany had established previously in this respect were broken again in the fertilizer year ended June 30, 1929. According to figures given the latest congress of fertilizer delegates, meeting periodically in the Prussian Ministry of Agriculture, Germany's average per hectare of artificial fertilization was 14.6 kilos of fixed nitrogen, 18.6 kilos of phosphoric oxide, and 26.6 kilos of pure potash, all increases over corresponding pre-war figures. With 1913 consumption as 100, the latest figures represent a nitrogen fertilization of 243, a P_2O_5 application of 103, and a use of K_2O of 167.

The curve of artificial fertilizer use may be observed in the following table. The corresponding figures per square kilometer require simply a 100-multiplier, 100 hectares making 1 square kilometer.

GERMAN ARTIFICIAL FERTILIZER USE

Year	Nitrogen (N)		Phosphoric oxide (P_2O_5)		Pure potash (K_2O)	
	Kilos per hectare	Index	Kilos per hectare	Index	Kilos per hectare	Index
1913–14	6.0	100	18.0	100	15.9	100
1925–26	11.4	190	13.1	73	21.0	132
1926–27	13.8	230	15.4	91	24.7	155
1927–28	13.5	225	17.5	97	25.3	159
1928–29	14.6	243	18.6	103	26.6	167

It should be of interest to American phosphate rock producers that German P_2O_5 fertilization, according to the above figures, has increased above its corresponding pre-war level, in comparable areas (exclusive of territory separated under the peace treaty). Though a great part of this increase has been taken by basic slag, more conveniently imported from neighboring steel-producing countries, fertilization with superphosphate increased in 1929 some 10 per cent, with consequent proportionate benefits to American phosphate-rock producers.

Total artificial fertilizer used by German agriculture is shown in the following table.

CONSUMPTION OF ARTIFICIAL FERTILIZERS IN GERMANY

[In metric tons]

Year	Nitrogen (N)	Phosphoric acid P_2O_5)	Pure pot ash (K_2O)	Limestone[1]
1913–14	185,000	555,000	490 000	2,852,500
1924–25	340,000	371 000	653 000	932,020
1925–26	330,000	380 000	609,000	996,780
1926–27	400,000	485,000	717,000	1,159 806
1927–28	390,000	508,000	733 000	1,306,816
1928–29[2]	430,000	547,000	783,000	1,580,000

[1] Calendar year

[2] Revised figures

GERMAN FIXED NITROGEN INDUSTRY

PRODUCTION

Though official or other figures estimating Germany's fixed nitrogen production are issued to cover years ending June 30, it may be reckoned that production in 1929 amounted to close to 800,000 metric tons At the rate of 85 pfennigs per kilo, the value was at least 680,000,000 marks Against a corresponding estimated world production of around 2,000,000 tons, it is to be concluded that German production approaches saturation, particularly with the vigorous development of fixed-nitrogen production elsewhere, while agricultural consumption is slumped

World production in 1929–30, according to estimates of Aikman (Ltd), London, will reach 2,365,000 metric tons of contained nitrogen, of which 1,430,000 tons will be synthetic, 425,000 tons in ammonia by-product, and 510,000 tons in Chile saltpeter This is compared with a total 2,005,000-ton production in 1928–29, as the following figures show

ESTIMATED WORLD PRODUCTION OF FIXED NITROGEN

[In metric tons]

Year	Synthetic	By-product	Chilean	Total
1926–27	735 000	310 000	200 000	1,245,000
1927–28	875,000	390 000	387 000	1,652 000
1928–29	1,100,000	405,000	500,000	2,005,000
1929–30	1,430,000	425,000	510,000	2 365,000
1930–31	1,725,000	425,000	530,000	2,680 000

CONSUMPTION

The German supply of nitrogen in 1929 may be figured as having been distributed as follows 425,000 tons to domestic agriculture, 100,000 tons to industry (in ammonia, nitric acid, and ammonium nitrate, primarily), and 275,000 tons for export Considering the latter, it must also be noted that Germany has excess imports of Chile saltpeter, preferred for sugar-beet fertilizing, 130 381 metric tons of bulk Chile saltpeter (16 per cent nitrogen) were imported in 1929, against exports of 69,411 synthetic and natural sodium nitrate, making a net import of 60,971 tons in 1929 against 81 347 metric tons excess imports in 1928 Imports were necessarily stimulated by the decrease in price effective July 1, 1929, with the signing of the international Anglo-German-Chilean nitrogen pact, although they received impetus immediately after free selling was established by the Chile Nitrate Producers Association

PROCESSES USED

Germany's estimated production of 800,000 tons of nitrogen in 1929 was probably divided roughly as follows

	Metric tons
Haber-Bosch process (Oppau-Leuna)	600, 000
Cyanamide	80, 000
By-product ammonia	90, 000
Other, that is, Ruhr coke-oven gas separation syntheses	30, 000
Total	800, 000

HABER-BOSCH PROCESS

The Haber-Bosch direct ammonia synthesis operated by the German dye trust at the Leunawerke and at Oppau, Ludwigshafen, is the largest fixed-nitrogen enterprise in the world Hydrogen and nitrogen from water and producer gases are combined under a 200-atmosphere pressure at 500° to 600° C over an iron-oxide catalyst The process yields an 8 per cent ammonia recovery on the first run, the uncombined gases returning to the process cycle A subsequent interaction between the ammonia, carbon dioxide, and gypsum produces ammonium sulphate Out of an average daily production by the Leunawerke (with a capacity of 1,800 metric tons of primary nitrogen daily) of about 1,500 tons, some 600 to 700 tons enters ammonium sulphate, another 100 to 200 tons enters calcium nitrate, while the remainder is shipped out as anhydrous or aqua ammonia for treatment at other works or for the open market The Oppau plant, on the other hand, though of but one-fifth the capacity of the Leunawerke, makes a wider variety of nitrogen carriers

In addition to these German dye-trust stocks must be considered the Government-owned cyanamide works at Piesteritz, Central Germany, and Trostberg, Bavaria, along with the by-product ammonia from the coke and gas plants

COKE-OVEN GAS PROCESSES

The three major processes basically developed in the pre-war era will face formidable competition from the new modern syntheses of coke-oven gas hydrogen with nitrogen over stronger catalysts and, in some cases, at even lower pressures than the Haber process employs The latter, as mentioned, gives only an 8 per cent ammonia recovery on the first run, while other modern processes give 20 per cent or better under favorable conditions. The Haber-Bosch Leunawerke must haul coke from the distant Ruhr to make its water and producer gases, although experiments are still under way to produce these raw gases from lignite, available in the vicinity The production of Haber-Bosch ammonium sulphate, however, is favored in one special respect, namely, that it uses cheap gypsum instead of relatively expensive sulphuric acid.

It has been estimated that it costs the dye trust 42 pfennings to fix 1 kilo of nitrogen in ammonium sulphate, against 39 to 40 pfennings by Ruhrchemie and Kali-Kloeckner by the Bronn-Linde-Concordia coke-oven hydrogen separation and Casale and Claude ammonia synthesis, respectively, using H_2SO_4, whereas the corresponding cost to fix 1 kilo of nitrogen in cyanamide in Germany is said to be as high as 61 pfennings A detailed cost analysis has never been made public by German producers Of course, the dye trust is fortified with tremendous production capacity and a wide line of fixed-nitrogen salts, furthermore, its nitrogen plants are already amortized, and its utilization of wastes all along the line is a marvel of plant efficiency

The newer synthetic-nitrogen plants, already in production or proposing production based on a coke-oven gas hydrogen separation, evidently believe that they can produce in competition with the dye trust with profit Undeterred by discouragements put in their way, at least seven new plants are built, or now building, essentially to tap waste coke-oven gas for cheap hydrogen Two of them propose to use an American process They are

NEW GERMAN COKE-OVEN GAS PLANTS FIXING NITROGEN

Name	Location	Owner concern	Proposed nitrogen capacity
			Metric tons
Gasverarbeitungs Ges	Sodingen, Westphalia	Roechling Hibernia	50, 000
Stickstoff Scholven	Scholven, Rhur	Hibernia (Prussian State)	10, 000
Ruhrchemie A G	Sterkrade, Holten	28 Ruhr coal companies	38, 000
Gewerkschaft Victor	Rauxel, Sondershausen	Wintershall-Kloeckner	12, 000
Gewerkschaft Ewald	Herten, Westphalia	Gewerkschaft Ewald	20, 000
Stickstoff A G	Waldenburg, Silesia	Prince of Pless	30, 000
Not given	Grillo	Gelsenkirchener Bergwerk A G	30, 000

This impressive total, if and when it materializes, puts in sight over 1,000,000 metric tons of fixed-nitrogen production by German plants The three first enumerated above went into modest production in 1929 but, as already suggested, probably did not produce much over 30,000 tons combined

MONT-CENIS PROCESS

The Sodingen, Westphalia, plant is an extension of a former pilot experimental operation that has developed the so-called Mont-Cenis, or Uhde, synthesis for a number of years This process, incidentally, has been licensed for operation in the Netherlands, Japan, and the United States It is expanding production at Sodingen in plant No 1, making so-called Montansaltpeter, 26 per cent nitrogen (one-fourth ammonia nitrogen and three-fourths nitrate nitrogen), and in plant No 2 at pits of the Hibernia (coal) company, making ammonium sulphate Its complex also makes anhydrous ammonia and ammonium nitrate While planning to produce 40,000 tons immediately, this is expected to increase to 90,000 tons eventually

RUHRCHEMIE A G OPERATIONS

Ruhrchemie A G went into production at Sterkrade, Holten, on April 1, 1929, fed with coke-oven gas from the Osterfeld plant of Gute Hoffnungshuette, making sulphate, nitric acid, and ammonia It plans to increase production to 50,000 tons of nitrogen, financing extensions with an additional $3,000,000 American loan borrowed in 1929, a previous $8,000,000 American loan having been issued in 1928

Ruhrchemie's synthetic ammonia results from a Casale synthesis, employing 750 atmospheres pressure It obtains its hydrogen from coke-oven gases also by a Bronn-Concordia-Linde separation

It is unique in production of so-called ammonia chalk (Kalkammon), with 17 per cent primary nitrogen and 30 per cent limestone (calcium carbonate) produced by interaction of ammonia, carbon dioxide, and calcium chloride (paralleling the Leunawerke ammonia, carbon dioxide, and calcium sulphate interaction), producing ammonium chloride and calcium carbonate, composing the mixture that is adaptable to German soils, still impoverished with limestone fertilizer because of wartime and postwar limestone shortage Ammonia chalk did not sell so actively in Germany in 1929, however, probably because its price was higher than that of ammonium chloride—79 to 89 pfennigs per kilo of contained nitrogen against 76 to 86 pfennigs per kilo

It might be mentioned that the German dye trust makes its ammonium chloride at its Oppau plant by an interaction of sodium chloride, carbon dioxide, and ammonia, yielding soda ash as a by-product

GEWERKSCHAFT VICTOR OPERATIONS

Gewerkschaft Victor, at Rauxel, 10,000,000 marks capital, associating the Wintershall concern with the Kali-Kloeckner company on a 50–50 basis, is essentially a potash plant and is referred to, therefore, in a later review of the German potash industry in 1929 Ammonia, from a Claude 1,000-atmosphere synthesis operated at Rauxel, is shipped to Sondershausen for combination to potassium nitrate The Rauxel plant also produces nitric acid and potash-ammonium nitrate The latter, with 16 per cent nitrogen of one-half each ammonia and nitrate effect and with 28 per cent K_2O, it is understood, is marketed by the German nitrogen syndicate, but the potash mixtures are not, making the Wintershall-Kloeckner combine, unlike the Gaveg and Ruhrchemie operations, independent of the German nitrogen syndicate

NITROGEN SYNDICATE PROLONGATION

Both Gaveg and Ruhrchemie were committed to the German nitrogen syndicate in December, 1929, after lengthy negotiations in connection with the prolongation of the cartel from June 30, 1930, to June 30, 1935, the syndicate heretofore had pooled sales of the nitrogen carriers made by the dye trust cyanamide works and coke and gas by-product producers in the Ruhr and in Upper Silesia It may be believed that Gaveg and Ruhrchemie entered the syndicate either satisfied with a production (or sales) quota commensurate with the importance of their coke-oven gas hydrogen synthesis, or because they prefer to mark time awaiting a reasonable 5-year period during which they can amortize their initial investment Otherwise, the German dye trust, though producing at a straight operating cost (exclusive of amortizations, etc) above the coke-oven gas factors, might have been in position to drop nitrogen prices, to the embarrassment of the Ruhr plants

NEW PLANTS AND PROCESSES

Two other enterprises plan to enter the German synthetic-nitrogen field, employing hydrogen separated from coke-oven gas, and both announce they will employ an American direct ammonia synthesis, utilizing a 300-atmosphere pressure for a recovery of from 20 to 22 per cent ammonia on the first run.

One of these is another Ruhr coal operation, so-called Gewerkschaft Ewald, associated with the Koenig Ludwig pits, which is building its ammonia synthesis plant at Oer-Erkenschwick (Herten, Westphalia). It figures its plants will be ready for operation about June 30, 1930, with an initial capacity of 20,000 metric tons of contained nitrogen annually. Incidentally, it will recover sulphur from coke-oven gases by the new Heinrich Koppers Co. (Essen) cyanogen-ammonia-sulphur (C. A. S.) process.

Stickstoff A. G., Waldenburg, Silesia, capital 8,000,000 marks, owned by the Prince of Pless interests, also expects to go into a production of around 15,000 tons of fixed nitrogen annually in synthetic ammonia by the same American process applied to the hydrogen-nitrogen mixture of coke-oven gas. The latter, however, will be cracked by a process belonging to the French Kuhlmann Co. and not under Bronn-Concordia-Linde patents. Though it seems premature to plan an extension of production, the proposed plant promises a subsequent output of around 30,000 tons of contained nitrogen annually.

THUERINGER-GAS A. G. (LEIPSIG) PROCESS

Furthermore, two processes came to light in 1929 that may solve practically the problem of combining the sulphur and ammonia in coke-oven gas to ammonium sulphate. One, the so-called Dr. M. R. Tern process, went into operation at the Engelsdorf, Leipsig, works of Thueringer Gas Ges. on July 1, 1929, and is expected to produce some 37,000 metric tons of bulk ammonium sulphate (7,000 tons of nitrogen) annually. Coke-oven gas is freed from tar in connection with an ammonia separation, the latter is specially stored. Similarly, sulphur is removed from the gas by being collected in iron hydroxide, subsequently roasted for its sulphur-dioxide vapors which are specially electrolyzed to the trioxide. The NH_3 and SO_3 are finally combined in proper proportions to form $(NH_4)_2SO_4$. The latter is marketed under the trade name Elektro-Ammon.

HEINRICH KOPPERS CO. (ESSEN) C. A. S. PROCESS

The Koppers cyanogen-ammonia-sulphur process resembles the Tern process in certain particulars, separating ammonia, which is bound direct to sulphur dioxide, forming polythionate and ammonium sulphate, the former being further processed to ammonium sulphate and free sulphur. An experimental plant operating this process went into operation in the Ruhr early in 1929. A commercial operation is about to go into operation at the Georgschacht at Oberkirchen, to consume some 600 tons of dry coal a day.

It is significant that ammonia nitrogen sales in 1929 declined in favor of the nitrate-nitrogen carriers. Ammonium sulphate sales fell, it is said, to 20 per cent of total artificial-nitrogen sales The I G 's ammonia-chalk saltpeter sold so well that its production was increased

Consumption of Nitrophoska, the complete nitrogen-potash-phosphoric acid mixture produced by the dye trust at Piesteritz, increased about 100 per cent over 1928 The 1929 sales were 25,000 tons in terms of fixed nitrogen, or 155,000 tons bulk, against 12,000 and 74,000 tons, respectively, in 1928

EXPORTS

Exports of fixed nitrogen carriers, chiefly fertilizer, by Germany, roughly put at more than 275,000 metric tons of contained nitrogen annually, were as follows

GERMAN NITROGEN EXPORTS

Commodity	1928	1929		
		Total amount	Total value	Amount to the United States
	Metric tons	*Metric tons*	*Marks*	*Metric tons*
Ammonium sulphate	837, 257	726, 814	134, 009, 000	13, 327
Calcium nitrate, urea	395, 586	494, 337	103, 399, 000	73, 768
Nitrophoska [1]	46, 496	50, 831	17, 322, 000	5, 666
Ammonium chloride	35, 581	23, 637	6, 587, 000	1, 402
Sodium nitrate	32, 422	69, 411	14, 319, 000	4, 755
Nitric acid	31, 153	29, 113	7, 101, 000	----------
Potassium nitrate	23, 161	28, 535	10, 883, 000	5, 047
Ammonium nitrate	12, 716	14, 071	5, 885, 000	52
Ammonium carbonate	3 293	2, 880	1, 424, 000	184
Nitrites	2, 932	2, 901	1, 087, 000	----------
Cyanamide	363	1, 264	216, 000	----------
Sodium and potassium cyanide	4, 168	4, 077	5, 537, 000	2 272

[1] Includes miscellaneous phosphatic salts, such as disodium phosphate and ammonium phosphate

INTERNATIONAL NITROGEN PACT

On June 26, 1929, it was made publicly known that German producers, led by the German dye trust, British producers, represented by Imperial Chemical Industries (Ltd), and Chilean nitrate producers had agreed, in a 10-year contract, to cooperate, particularly along propaganda lines There has been no evidence so far that the agreement includes a definite production or market allocation division, but such agreement in principle is certainly conceivable, as, for instance, Chilean producers selling markets where sodium nitrate is distinctly preferable in soil fertilization

Directly thereafter, Norsk-Hydro, the Norwegian atmospheric fixation complex in which the German dye trust is interested through investment and process operation (Haber-Bosch), joined the triangle on a 25-year contract Norsk-Hydro is raising its production to 90,000 metric tons of primary nitrogen annually, producing calcium nitrate, nitric acid, ammonium nitrate, sodium nitrate and nitrite, and "nitammonia chalk," mixing ammonium nitrate and calcium carbonate The eventual value of Norsk-Hydro production is estimated at 130,000,000 crowns

PRICE TRENDS

Coincident with the conclusion of the international nitrogen pact, the German nitrogen syndicate announced a price decrease on July 1, 1929 This decline effected a maximum price drop on ammonium sulphate of 6 6 per cent, compared with 1928–29 declines of 8 9 per cent on calcium nitrate and 8 1 per cent on synthetic sodium nitrate Nitrophoska was dropped 50 pfennigs per 100 kilos of bulk salt

GERMAN NITROGEN SYNDICATE PRICES

[In marks per kilo of fixed nitrogen delivered in Germany]

Period	Ammonium sulphate		Calcium nitrate [1]		Leunasaltpeter, Montansaltpeter, and potash-ammonium nitrate		Sodium nitrate (synthetic)	
	1929–30	1928–29	1929–30	1928–29	1929–30	1928–29	1929–30	1928–29
July	0 80	0 85	1 03	1 13	------	------	------	1 23
August	81	86	1 03		0 83	0 85	1 13	
September	82	87	1 03		84	86	1 13	
October	83	88	1 04		85	87	1 13	
November	84	89	1 04		86	88	1 14	
December	85	91	1 05		87	89	1 14	
January	89	94	1 06		89	91	1 15	
February–June	90	95	1 06		92	94	1 16	
March–June	------	------	1 07		93	95	1 17	

Period	Ammonia chalk, saltpeter, and urea		Calcium cyanamid		Ammonia chalk, DAVV [2]		Ammonium chloride	
	1929–30	1928–29	1929–30	1928–29	1929–30	1928–29	1929–30	1928–29
July	0 85	0 85	0 76	0 78	0 79	0 83	0 76	0 78
August	86	86	78	80	80	84	77	79
September	87	87	79	81	81	85	78	80
October	88	88	79	81	82	86	79	81
November	89	89	81	83	83	87	80	82
December	91	91	83	85	85	89	82	84
January	94	94	85	87	88	92	85	87
February–June	95	95	86	88	89	93	86	88

[1] Including bag

[2] Deutsche Ammoniak-Verkaufs Vereinigung, Bochum

Nitrophoska prices are fixed until further notice at 25 50 marks per 100 kilos for the I grade, 24 marks for the II sort, and 25 50 for the III mixture These three mixtures represent the following analyses

ANALYSES OF NITROPHOSKA

Kind	N	P_2O_5	K_2O
	Per cent	*Per cent*	*Per cent*
Nitrophoska I	17 5	13 0	22 0
Nitrophoska II	15 0	11 0	26 5
Nitrophoska III	16 5	16 5	20 0

These prices are consumer prices and apply to orders of 15-ton (carload) lots delivered freight paid f o b any German railway station The syndicate gets, after paying freight and discounts to dealers, a net selling price that averages to 10 pfennigs per kilo of nitrogen less Proceeds to the works are even less, because costs of maintaining the syndicate, propaganda, and financing stocks have to be deducted

Credits are allowed for 90 days on two-thirds of the amount of the order A discount of 3 per cent is allowed on cash payment exceeding one-third of the bill These terms apply, of course, only to inland customers

GERMAN POTASH INDUSTRY

The German potash industry sold 1,401,416 metric tons of pure potash (K_2O) in 1929, or 1 4 per cent less than the record sales of 1,421,387 tons in 1928 German agriculture, which takes currently around 60 per cent of this supply, suffered from the generally prevailing economic slump in 1929, while even force majeure exerted its inevitable ill effect on markets, the early 1929 winter was unusually prolonged and severe, while the summer's drought tied up inland-waterway transportation for a time

World production at the same time may be estimated at 2,015,000 metric tons of pure potash, as the following approximate estimates show It is thus observed that Germany controls at present some 70 per cent of world production (or sales)

WORLD POTASH PRODUCTION

Country	Metric tons	Per cent of total	Country	Metric tons	Per cent of total
Germany	1,400,000	69 5	Spain	25,000	1 3
France	450,000	22 3	Others	40,000	1 9
Poland	50,000	2 5			
United States	50,000	2 5	Total	2,015,000	100 0

Comparative figures of German potash sales, with unit and total proceeds therefrom, are given below, as detailed in the 1929 annual potash report of the Gebrueder Dammann Bank K G, Hannover

GERMAN POTASH SALES

Year	Total	Net proceeds per 100 kilos K_2O	Total net proceeds	Year	Total	Net proceeds per 100 kilos K_2O	Total net proceeds
	Metric tons	*Marks*	*Marks*		*Metric tons*	*Marks*	*Marks*
1913[1]	1,110,300	17 07	189,500,000	1927	1,239,300	15 01	186,000,000
1924	843,800	12.45	105,000,000	1928	1,421,300	15 18	215,750,000
1925	1,225,500	12.82	157,100,000	1929	1,401,000	(2)	(2)
1926	1,099,800	13 47	148,100,000				

[1] Including Alsace

[2] Not available

GERMAN SALES OF COMMERCIAL GRADES OF POTASH

[In metric tons of potash content]

Grade	1913	1927	1928
Carnalite	7,000	2,000	2,000
Kainite	457,000	221,000	247,000
20 per cent fertilizer	48,000	98,000	100,000
30 per cent fertilizer	19,000	53,000	60,000
40 per cent fertilizer	265,000	550,000	620,000
Muriate	245,000	211,000	263,000
Sulphate potash	54,000	78,000	111,000
Sulphate potash magnesia	15,000	16,000	18,000

Although the German potash syndicate (by law) centralizes sales for the producers, it does not deliver direct to consumers, but to dealers, cooperatives, and mixed-fertilizer plants. In this dealing, the syndicate grants rebates according to the size of orders. The German dye-trust plant making the complete artificial fertilizer mixture, Nitrophoska, at Piesteritz, is the largest individual customer.

The largest wholesale customers are (1) Landwirtschaftliche Duengerbezugs G. m. b. H., an agricultural cooperative, taking about 43 per cent of domestic consumption, (2) Duengerhandel G. m. b. H., and (3) Deutsches Kalikontor. The last two, straight trading companies, took 24 and 13 per cent, respectively, of 1928 domestic deliveries. The rest goes to about 2,000 dealers and cooperatives.

In maintaining its organization, including sales, advertising, scientific research, etc., operating costs of the German potash syndicate are estimated at from 4 to 5 per cent of the total proceeds from sales, some 230,000,000 marks, including by-products exclusive of returns for rock salt.

PRICES

Prices for German potash were unchanged in 1929, they were last fixed in December, 1926, when they were increased by an average of 10 per cent, amounting to 13.4 per cent above the pre-war average. Prices to American importers are based on German domestic prices plus freight.

EXPORTS

German potash fertilizer exports, accounting for approximately 40 per cent of the country's supply (imports being, of course, nil), were maintained at a slightly better rate in 1929 than domestic sales, as may be gathered from the following official export figures. Whatever improvement is evident is generally credited to the harmonious working of the Franco-German potash pact, effective May 1, 1926, with an initial 7-year term subject to renewals, dividing export markets in the ratio of 70 per cent to Germany and 30 per cent to France.

German Potash Fertilizer Exports

Kind	1928	1929		
		Amount	Value	Amount to the United States
	Metric tons	*Metric tons*	*Marks*	*Metric tons*
Carnalite, 9 to 12 per cent K_2O	345	435	16,000	----------
Kainite, 12 to 18 per cent	255,856	194,301	5,561,000	49,086
Potash fertilizer, 18 to 42 per cent	845,059	882,411	61,186,000	233,071
Potassium sulphate	181,402	179,854	32,035,000	52,027
Potassium chloride	193,529	216,251	29,652,000	130,216
Potassium nitrate	23,161	28,535	10,883,000	5,047
Potash sulphate magnesia	63,032	70,086	7,374,000	11,487
Total	1,562,384	1,571,876	146,710,000	480,934

The German potash syndicate has prepared the following statistical data covering purchases, production, and sales of pure potash:

PRODUCTION AND SALES STATISTICS OF GERMAN POTASH INDUSTRY

[In terms of pure potash]

Year	Production in metric tons	Sales						
		Total, in metric tons	Domestic		To the United States[1]		To other foreign countries	
			Metric tons	Per cent of total	Metric tons	Per cent of total	Metric tons	Per cent of total
1918	1,135,985	1,001,664	859,716	85.7			141,948	14.3
1919	944,779	812,002	637,033	78.5	70,129	8.6	104,840	12.9
1920	1,297,396	923,643	689,391	74.6	83,602	9.1	150,650	16.3
1921	1,054,213	921,147	768,477	83.4	39,515	4.3	113,155	12.3
1922	1,510,910	1,295,544	963,582	74.4	109,608	8.5	222,354	17.1
1923	1,280,437	885,943	535,106	60.4	104,623	11.8	246,213	27.8
1924	1,014,146	842,061	502,456	59.7	111,636	13.2	227,969	27.1
1925	1,572,327	1,225,512	767,164	62.6	176,541	14.4	281,807	23.0
1926	1,260,047	1,099,873	694,274	63.1	136,350	12.4	269,249	24.5
1927	1,518,724	1,239,372	779,941	62.9	156,195	12.6	303,236	24.5
1928	1,690,469	1,421,387	869,289	61.1	165,822	11.7	386,276	27.2

[1] Including Hawaii and Canada

POTASH BY-PRODUCTS

Owing to the concurrence of the salts of magnesium with those of potassium in Germany's extensive potash deposits, a sizeable by-product output occurs in the potash refining works. These by-products include bromine and magnesium chloride from carnalite ($KCl \cdot MgCl_2 \cdot 6H_2O$) and Glauber salts (sodium sulphate) and Epsom salts (magnesium sulphate) from crude kieserite ($MgSO_4 \cdot H_2O$) and hard salt (a mixture of potassium chloride, magnesium sulphate, and anhydrite). Incidentally, rock salt is recovered in a sufficiently pure state from certain German potash mines to be marketed without further refining.

The potash mines yield some 2,399,700 metric tons of rock salt annually, valued at about 40,000,000 marks, out of a total German production, including evaporated salt, etc., of 2,909,400 tons.

The value of all potash by-products, including rock salt, produced in Germany may be estimated at around 55,000,000 marks annually.

A special inquiry commission which published its report on the German potash industry in 1929 gives official figures of production of these by-products (to 1927, inclusive) for the first time, at least in the postwar period. They follow:

GERMAN PRODUCTION OF POTASH BY-PRODUCTS

[In metric tons]

Year	Bromine	Magnesium chloride		Sodium sulphate	Bitter salts
		Solid	Liquid		
1913	765	21,866	78,584	7,205	92,207
1924	643	27,635	29,139	43,144	75,385
1925	1,591	32,159	69,052	51,145	104,133
1926	1,383	38,143	60,255	85,574	84,412
1927	1,676	35,445	62,745	109,080	125,376

With expanding markets, increases are noted in every case except liquid magnesium chloride This may be due to the fact that only solid $MgCl_2$ is exported now The value of these items, however, increased from 4,000,000 marks in 1913 to 10,000,000 marks in 1926, 12,200,000 marks in 1927, and probably 15,000,000 marks in 1929.

The latest available export figures for these lines show a flourishing outgoing trade, with the United States as an important customer It might be mentioned that while the German potash industry supplies bromine and the salts of magnesium virtually exclusively, additional stocks of sodium sulphate are supplied by other than the giant potash refining works at Merkers, Thuringia, belonging to the Wintershall concern, which operates a cheap recovery by freezing solutions of magnesium sulphate and sodium chloride for a yield of sodium sulphate and magnesium chloride The Merkers works, however, may be reckoned as producing 100,000 metric tons of Glauber salts annually, out of a total German production of 250,000 tons

The following table shows German exports of potash by-products.

GERMAN EXPORTS OF POTASH BY-PRODUCTS

Product	1928	1929		
		Amount	Value	To the United States
	Metric tons	*Metric tons*	*Marks*	*Metric tons*
Bromine	184	233	727,000	----------
Magnesium chloride	36,585	42,999	3,612,000	1,561
Sodium sulphate	120,393	177,373	8,924,000	77,098
Magnesium sulphate	93,942	100,869	4,385,000	5 984
Salt [1]	880,092	969,815	17,379,000	----------

[1] Includes evaporated salt, etc

TECHNICAL DEVELOPMENTS

Alert to the possibilities of extending its production scope, the German potash industry, led by the dominant Wintershall concern, capital 200,000,000 marks, and the Kali-Chemia A G, capital 32,000,000 marks (merger of the Stassfurth-Friedrichshall potash works and the former Rhenania-Kunheim company), attained an important penetration into the wider fields of chemical processing of potash in 1929 The most significant commercial development along this line was inauguration by the Wintershall-Kloeckner combine at the works at Rauxel of production of synthetic ammonia, nitric acid, and potash ammonium nitrate, and at Sondershausen a pilot production of potassium nitrate and ammonium chloride in a 2-phase operation treating potassium chloride with nitric acid for a potassium nitrate recovery, and then combining the by-product hydrochloric acid therefrom with ammonia to get ammonium chloride

This operation may be expected to extend further in 1930 to the production of additional potassium nitrate and ammonium phosphate by treating phosphate rock with nitric acid and potassium nitrate, a 3-phase substitution as follows

(1) $Ca_3P_2O_8 + 6\ HNO_3 + 3K_2SO_4 = 3\ CaSO_4 + 2H_3PO_4 + 6KNO_3$
(2) $H_3PO_4 + KNO_3 + \text{cooling} = KNO_3$ (precipitate) $+ H_3PO_4$
(3) $H_3PO_4 + 2NH_3 = (HN_4)_2HPO_4$

Still another promising development by the Wintershall company is production of potassium sulphate from raw potash and magnesium salts, without waste liquor yield, it is said that this concern may get a by-product magnesium metal, adaptable as is the German dye trust's "Elektion," with over 90 per cent magnesium content, for light-metal alloy

Paralleling Wintershall development in this field, the Kali-Chemie A G , Berlin, is entering the market with a potash-phosphate fertilizer to be known as Kali-Rhenania-Phosphate The former Rhenania-Kunheim works have been in the local market since the war with so-called Rhenania-Phosphat, with 23 to 30 per cent P_2O_5 and 40 per cent effective $CaCO_3$, made by a special thermal treatment of phosphate rock with limestone and phonolith or soda salts Association with the Neustassfurth potash works naturally results in a combination with muriate of potash An even wider extension of its chemical interests is evident in Kali-Chemie's acquisition in March, 1929, of Peroxyd-Werke Siegle & Co , capital 500,000 marks, producing hydrogen peroxide primarily

While the Rhenania-Kunheim department of Kali-Chemie A G produces and markets a wide line of heavy chemicals, mostly unrelated to potash, the Consolidierte Alkaliwerke zu Westeregeln affiliation of Germany's second largest potash concern, the Salzdetfurth-Aschersleben-Westeregeln combine, is interested in the so-called Ring G m b H , of the Riedel-deHaen company, Berlin, with special processes for production of caustic potash and caustic soda

Even the Prussian State (Preussische Fiskus), which took over the Anhalt potash concern (until 1953) in 1929, widened its field of chemical production through the assumption of control of chemical companies formerly associated with Anhaltische Salzwerke, namely, the Concordia chemische Fabrik, Leopoldshall, and Chemische Fabrik vorm Vorster & Grueneberg, of Stassfort, specialized partly on potassium carbonate

CONCENTRATION OF PRODUCTION

While concentration and rationalization (standardization) have marked development in the technical and mining and refining of potash here in the past few years, notably since 1924, the organization of the potash concerns has also been progressively tightened so that six may be considered as functioning in production, having acquired by purchase or lease the production rights of other smaller factors For instance, Wintershall A G , of Cassel, has acquired production rights of the Wilhelm Sauer concern (Lehrte, Hannover), and Salzdetfurth-Aschsersleben-Westeregeln (Salzdetfurth) of the Einigkeit concern (Ehmen, Hannover), of the Manfeld concern (Eisleben), and of the Roechling concern (Halle on the Saale) Yet these acquired concerns still preserve their company identity and pay dividends on proceeds accruing from deals made with the controlling concerns

Reduced to their minimum, the producing concerns are as follows

GERMAN POTASH CONCERNS IN PRODUCTION

Company name	Headquarters	Capital	Approximate production quota
		Marks	*Per cent*
Wintershall A G	Cassel	200,000,000	[1] 41 011
Salzdetfurth, etc , A G	Salzdetfurth	72,000,000	[2] 26 887
Burbach Kaliwerke A G	Magdeburg	125,000,000	16 418
Preussische Fiskus	Berlin	[3] 140,000,000	[4] 9 101
Kali-Chemie A G	do	32,000,000	4 230
Deutsche Solvay works	Bernburg, Anhalt	75,000,000	2 229
Special works			124

[1] Includes Sauer quota
[2] Includes quotas of Roechling, Mansfeld, and Einigkeit
[3] Includes coal, amber, etc
[4] Includes quota of Anhaltische Salzwerke

The recent drift of the above concentrations has effected considerable change from the original division of the German potash industry, which led in 1924 to the formation of two definitely opposed factions, each striving for production (and influence) control of the industry These were the so-called "Anti-block" (officially known as Vereinigte Kaliwerke G m b H), led by the Salzdetfurth concern, on the one hand and the Wintershall group on the other

Acquisition in 1929 by the neutral Prussian State of the Anhaltische (State) Salzwerke G m b H production rights until 1953 altered the production-quota standing of the two groups

While the number of German potash shafts increased from 205 in 1921, when the closing-down decree was promulgated, to 229 in 1928, the number of mines operating decreased from 155 to 60 This increased the potash output per mine in 1928 to three times the 1913 level

Likewise, the number of chemical refining works reducing the crude salts to refined products decreased from 92 in 1913 to 75 in 1921, to 31 in 1928, and 30 in 1929, increasing the annual output per unit from 9 600 metric tons K_2O in 1921 to 43,000 tons in 1928

GERMAN POTASH-REFINING PLANTS

Year	Plants operating	Crude salts delivered to factories		Average output per plant	
		Commercial salts	Potash content	Commercial salts	Potash content
		Metric tons	*Metric tons*	*Metric tons*	*Metric tons*
1921	75	6 984,900	718,700	92,500	9,600
1922	70	10 302 300	1,091 700	146,100	15,600
1923	69	9,687,400	1,024,100	138 000	14,800
1924	57	6,442,600	757,500	113,500	13,300
1925	49	9 623 400	1,194,100	195,200	24,100
1926	34	7,390,900	935 800	213 300	27,200
1927	32	8 626,300	1,132,200	275,100	36,600
1928	31	10 152 200	1,332,800	327 500	43 000

While the works produced only about 40 per cent of capacity in 1921, this was increased to 90 per cent in 1928, declining to something over 80 per cent in 1929

Out of 32 chemical plants operating in 1927, 2 had daily capacities of 3,000 to 5,000 tons of commercial salts, 5 had from 1,500 to 3,000 tons, 15 from 1,000 to 1,500 tons, and 10 from 500 to 1,000 tons.

SALTS USED

The progress of concentration has also centered on salt mining with a higher average pure potash content. This was increased from a 10.3 per cent average in 1921 to 13.6 per cent in 1928. Mines with lower content of potash, as carnalite, have been closed, except where special factors favored continuance of their operation, as unusually pure rock salt, or by-product recovery possibilities.

Preference for sylvinite and hard salt with higher K_2O content than carnalite and more-favored geological conditions generally have shifted production centers of German potash. The centers may be viewed as six: (1) Hannover, (2) Magdeburg, (3) Halle, (4) Nordhausen (South Harz), (5) Eisenach (Thuringia), and (6) south Germany. Concentration has shifted production in the past eight years in favor of Eisenach, Nordhausen, and south Germany and away from Hannover, Magdeburg, and Halle territory. The chief center of German potash production is in the Thuringian district, Werra Valley, where mines of the Wintershall concern primarily are operating chiefly hard salt.

The following percentage comparison shows the shift of production since 1921:

DIVISION OF GERMAN POTASH PRODUCTION BY TERRITORIES

[Per cent of total production]

Territory	1921	1928	Territory	1921	1928
Hannover	25.2	23.4	South Harz (Nordhausen)	18.9	20.0
Magdeburg	27.6	15.9	Eisenach (Thuringia)	15.9	34.3
Halle	12.4	5.1	South Germany (Baden)	------	1.3

The average chemical composition of the crude commercial salts operated by German potash mines is as follows:

AVERAGE CHEMICAL COMPOSITION OF GERMAN POTASH SALTS

[In per cent]

Kind	K_2SO_4	KCl	$MgSO_4$	$MgCl_2$	NaCl	Total K_2O
CRUDE SALTS						
Hard salt	---	20.5	20.8	2.3	46.3	13.0
Sylvinite	---	27.6	3.4	1.8	56.7	17.4
Carnalite	----	15.5	12.1	21.5	22.4	9.8
CONCENTRATES (REFINED)						
20 per cent potash	-----	3.3	12.0	4.2	40.2	20.9
30 per cent potash	-----	48.6	10.2	4.2	26.2	30.7
40 per cent potash	-----	64.1	5.5	1.1	21.2	40.4
Muriate (90 to 95 per cent)	-----	91.7	.2	.2	7.1	57.8
Sulphate (96 per cent)	97.2	.3	.7	.4	.2	52.7
Sulphate (90 per cent)	90.6	1.6	2.7	1.0	1.2	49.9
Sulphate potash magnesia	50.4	----	28.0	------	3.5	27.2

It is also significant to observe the progressive movement away from carnalite in favor of hard salt and sylvinite, as shown in the following table.

SALTS USED IN GERMAN POTASH PRODUCTION

[In per cent]

Territory	1921		1928	
	Carnalite	Other salts	Carnalite	Other salts
Hannover	40.5	59.5	7.3	92.7
Magdeburg	81.2	18.8	57.4	42.6
Halle	78.7	21.3	18.5	81.5
Thuringia	14.3	85.7	10.1	89.9

As a matter of fact, while German potash mines yielded 47 per cent carnalite and 52.7 per cent kainite and other salts in 1913, the corresponding output in 1928 was 16.5 per cent carnalite and 82.5 per cent kainite, etc.

Concentration and rationalization has also reduced the number of employed in the mines and works. In 1913 (within present areas, exclusive of Alsace) the industry employed 30,932 persons and paid 42,852,000 marks, or 4.38 marks per laborer and shift, in 1928 the number employed was 21,489, who were paid 46,325,000 marks, or 7.57 marks per laborer and shift.

The German potash industry employed a total of 21,782 persons on January 1, 1929, against 31,000 before the war.

PRODUCTION COSTS

The special commission of inquiry that investigated the German potash industry and published its report in 1929 prepared a highly illuminating set of detailed potash production costs in the three years 1926 to 1928. The investigation covered a considerable number of average works, if not all. The figures of cost thus developed are accepted generally as average production costs in the local industry, but may be taken with considerable reserve.

GERMAN POTASH PRODUCTION COSTS

[In marks per 100 kilos K_2O]

Item	1926	1927	1928	Item	1926	1927	1928
Wages	3.61	3.22	3.20	Administrative costs	0.73	0.63	0.50
Salaries	1.07	.92	.96	Taxes	.71	.59	.64
Social bonuses	.62	.61	.60	Quota compensations, etc.	1.00	.80	.70
Materials (without improvements)	3.34	3.13	2.95	Amortizations	2.79	2.79	2.79
Other operating costs [1](a)	.70	.60	.50	Total	17.13	14.45	13.48
Interest charges	1.90	1.32	1.12				

[1] Interest on production, mines damages, insurance, etc.

ESTIMATED PROFITS

Notwithstanding the low differential between published figures of proceeds to the works per 100 kilos of K_2O (as, for instance, 15.18 marks in 1928) and the above production costs, an examination of latest balance sheets of Germany's two largest potash concerns, Wintershall and Salzdetfurth, controlling together 60 per cent of German production, shows that these declare a clear profit showing of about 30,000,000 marks Were the potash concerns producing the other 40 per cent as favored, the entire industry would represent a profit showing of 50,000,000 marks As this, however, can not be accepted as the case, the more conservative estimate places profits on 1928 business at from 40,000,000 to 45,000,000 marks, or about $10,000,000

GERMAN POTASH LOAN

If during the first stages of rationalization of the German potash industry, which began seriously about 1924, the producers took losses (as seems to be confirmed by the inquiry commission's report), they were, of course, carried over by the potash loan of £15,000,000, authorized in 1925, that has been completely covered now in three issues £8,000,000 at 7 per cent, issued in December, 1925, at 94½, £4,000,000 at 7 per cent, issued in May, 1926, at 97, and £3,000,000 at 6½ per cent, issued in June, 1929, at 96

The several German potash concerns have taken different portions of the loan, partly to pay back short-term commitments but chiefly to finance rationalization Wintershall and Burbach, for instance, have taken blocks of the loan above their proportionate share in production, the Salzdetfurth concern, on the other hand, took less than its proportion

CAPITAL INVESTED

The inquiry commission attempted to estimate the amount of money invested in the German potash industry and concluded that this was 1,400,000,000 marks before the war, much of which was lost through abortive investments, sinking of unproductive shafts, etc When raising the British loan in 1925, the German potash syndicate represented the industry as an investment of 580,000,000 marks, but a revision of this figure, calculating costs of a potash works, placed it at 850,000,000 marks in early 1928 Calculated again on the basis of the purchase price of potash quotas, the figure of 700,000,000 marks develops The commission conservatively puts it at 600,000,000 to 700,000,000 marks Deducting the British loan of 250,000,000 marks, the German potash industry pays interest of the service of from 350,000,000 to 450,000,000 marks, at a maximum of 12 per cent paid by Wintershall and Salzdetfurth, this yield would reach 54,000,000 marks, but, as mentioned above, all producers are not so favored and do not pay 12 per cent

GERMAN SUPERPHOSPHATE INDUSTRY

German superphosphate interests, confronted then with a comparatively bearish demand (since changed) for their production in contrast to the nitrogen and potash industries, met on January 28, 1929, in Berlin, concurrent with the annual Agricultural Exposition sponsored by organized German farmers Speakers from the superphosphate industry dwelt on economic and scientific phases of superphosphate fertilization, urging it as deserving of greater attention now, in contrast with lowered demand as compared with pre-war times

While the German nitrogen and potash industries have boomed, particularly in postwar years, superphosphate fertilization has declined markedly Of course, the difficulties in financing of imports, particularly in first postwar years, discouraged imports of phosphate rock for acidulation, while demand for basic phosphate slag has increased greatly, partly because of its lower price and partly because of its lime content, needed by German soil neglected during the war and after to a degree of acid-sourness

The fact is that while Germany produced 1,819,000 metric tons of superphosphate in 84 superphosphate plants in 1913, it is producing between 700,000 and 800,000 tons in 45 plants now Imports of 929,560 metric tons of phosphate rock in 1913, of which 49 per cent originated in the United States, contrast with 909,574 metric tons, 36 per cent from the United States, in 1929

Furthermore, Germany's 1913 imports of 53,386 tons and exports of 282,653 tons of superphosphate compare with 1929 figures of 116,343 tons imported and 145,726 tons exported

It is also observed that while phosphate fertilizing in Germany in 1928–29 was about 2 per cent less than pre-war use, against 130 per cent more in the case of nitrogen and 60 per cent more in the case of potash, the progressive increase of phosphate fertilization does not necessarily attach to superphosphate application alone, but rather to basic phosphate slag, as mentioned above

Kommerzienrat Kurt Klamroth, of Halberstadt chairman of the administrative council of German Superphosphate Plants (Ltd) of Hannover and administrative council member of German Superphosphate Industry (Ltd) of Berlin referred to the more favored position of his industry before the war in contrast to its present slump He ascribed partly to the war and its blockade the drift away from superphosphate fertilizing by the German farmer in favor of nitrogen and potash, not to mention the shifting of the local farmer's choice in favor of basic phosphate slag With reference to charges that superphosphate sours the soil, Klamroth pointed out that this gave urge to organized counterpublicity inspired by special "superphosphate meetings" held January 27, 1927, at Berlin, July 12, 1928, at Konigsberg, and in October, 1928, at Heidelberg While the superphosphate industry is not seeking publicity as such, he continued, it wants to bring about a better proportion of artificial fertilizer application and further emancipation of Germany from its imports of some 4,000,000,000 marks worth of foodstuffs annually

GERMAN CHEMICAL MARKETS

The third largest export market for American exports in general, Germany, is the third market for American chemicals also While it is difficult to delimit the extent of so-called chemical production with exactitude—and German official foreign-trade figures fail to describe these limits—it may be stated generally that steady American chemical trade with Germany embraces sales primarily of naval stores, benzol, sulphur, phosphate rock, carbon black, borax, paints and lacquers, and chemical specialties—toiletries, medicinals, etc

While roughly estimating American chemical sales to Germany as around $20,000,000 annually, the office of the American commercial attaché in Berlin figures that a half-dozen American chemical firms are manufacturing there, while another 50 or so are selling through their appointed agents. A recent investigation by the commercial attaché located 7 agents for American naval stores, chiefly in Hamburg, 13 agents for American toiletries, chiefly in Berlin, 9 for pharmaceutics, in Berlin, and 17 for heavy chemicals, principally in Berlin and Hamburg.

It is also striking that American chemical processes are penetrating Germany with such increasing force that a number of outstanding new cases deserve special mention. These include an American nitrocellulose-lacquer process now going into operation, a perfected ammonia oxidation process, an advanced catalytic ammonia synthesis promising to enter German production in 1930, the vanadium-oxide contact process making sulphuric acid, an American process imparting a wood-grain surface to metals and other bases, and one making plastics from formaldehyde condensation. The American flotation system for metal extraction, the Cottrell precipitator, etc., have long been used in Germany.

It has been noted that in 1929 Germany imported 316,019,000 marks worth of chemicals (1,911,919 metric tons) against 311,518,000 marks (1,901,151 tons) in 1928. Exports were 4.3 times as great in value and 3 times in tonnage, with a 1929 value of 1,374,543,000 marks (5,680,901 tons), against 1,314,588,000 marks and 5,547,561 tons in 1928.

The German classification of chemicals in its foreign-trade schedule is insufficient, in so far as it excludes certain leading chemical items imported from the United States, including turpentine, rosin, benzol, phosphate rock, and borax minerals, which are assigned to other groupings. Selected chemical items imported from the United States in 1929, however, include the following:

	Metric tons
Rosin	50, 331
Benzol	61, 585
Sulphur	114, 521
Turpentine oil, pine oil	18, 197
Phosphate rock	331, 132
Carbon black	5, 609
Borax, boric acid	8, 499
Lacquers	247
Perfumed toiletries	47
Higher alcohols	126
Dyes	413
Crude borates	12, 000

A striking increase in 1929 in the above purchases from the United States was that of crude borates, resulting from the pioneer exploitation of crude borate mineral in the form of kernite in California, large deliveries of which were recently contracted for by the German borax cartel; at the same time, purchases of Californian refined borax increased. An increase in imports of benzol, shared by the United States, follows expanding motorization in Germany and the generous use of benzol in mixture with gasoline as fuel for internal-combustion engines. An increase in American sales of phosphate rock resulted from sales pressure to compete better with North African rock, but also from the circumstance that more superphosphate fertilizer is being applied to German soil in lieu of basic slag and other forms of prepared phosphates.

Among new market possibilities in Germany, toiletries and pharmaceutics offer a reasonable degree of promise, it has been mentioned that the American commercial attaché's office in Berlin estimates there are 13 agents already selling American toiletries and 9 selling pharmaceutics in Germany, exclusive of certain specialties being manufactured on the spot[2].

The prospect of further penetration of the German market by American pharmaceutics is especially promising, considering the progress of the Western Hemisphere in this field, notable instances of accomplishment being the discovery of insulin (Banting and Best), the scarlet-fever serum (Dick and Dochez), etc

In selling the German market, two paths are open, one by way of the physician and the other by direct approach to the public With a population around 65,000,000, Germany has some 47,000 physicians

Restrictions governing advertising to the public are no more severe in Germany than in America Advertising text must be truthful and not exaggerate, it is forbidden to advertise cures for diseases, but preparations for their prevention may be advertised

The American firm can assign its general representation to a German firm, preferably specialized in the line in question, and with suitable organization and experience to promote it In the sale of pharmaceutics to the medical profession direct, it is well to consider the advisability of permitting the German connection to use methods of approach that are more familiar to it than probably to the American company less familiar with local customs

When an American firm finds it advisable to establish its own German branch for exploiting the market, the best form is that of a limited liability company (G m b H), limiting the risk of the home company to the capital of the branch German law prescribes a minimum capital of this form of organization of about 20,000 marks, of which only 5,000 marks has to be paid in Foundation costs of such an enterprise usually cost only 500 to 700 marks

The customs duty on medico-pharmaceutical products, except patent medicines and those containing alcohol, amounts to 1 75 marks per kilo This type of preparation, being essentially of light weight, can thus be entered into Germany without any great expense, if it is of great weight, however, consideration should be given to its manufacture in Germany, its basic substance being shipped here, if not available in this country, and its formula intrusted to a suitable connection for local manufacture

Preparations containing alcohol are obliged to be made in Germany, the import duty on alcohol, no matter how much or little is in mixture, is very high, as a tax must be paid to the German Federal Alcohol Monopoly

Bottles, cartons, and all other packings can be furnished in Germany as advantageously, if not more so (owing to transport costs, etc) than in the United States

Customary trade discounts amount to 20 per cent to the wholesaler and 42½ per cent to the retailer, on the consumer's price The latter discount, however, decreases with advanced prices

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[2] A discussion on marketing so-called chemical specialties in Germany is contained in Trade Information Bulletin No 605, German Chemical Developments in 1928

APPENDIX

REVISED DATA ON THE GERMAN DYE TRUST STRUCTURE

[*Reproduced from the 1929 Edition of* "I G Farbenindustrie" with permission of Das Spezial Archiv der deutschen Wirtschaft, Verlag, R & H Hoppenstedt, Berlin]

Company	Location	Capital (marks)	Production	Dye trust share	Per cent
Ammoniakwerk Merseburg G m b H	Merseburg	135,000,000	Fixed nitrogen methanol, synthetic gasoline	101,250,000 marks	75
Rheinische Stahlwerke	Essen	150,000 000	Coal and lignite	56,000,000 marks	37 30
Leopold Cassella & Co G m b H	Frankfort on the Main	60,850 000	Dyes, intermediates, pharmaceutics	49,480,000 marks	81 27
Gewerkschaft Auguste Victoria	Huels (Kr Recklinghausen)	18,550 000	Coal and coke	16,880,500 marks	91
A Riebeck'sche Montanwerke A G	Halle	50,000 000	Lignite and by-products	15,737,600 marks	31 47
A G fuer Stickstoffduenger	Knapsack (Cologne)	8,000,000	Carbide, cyanamide, ferrosilicon, acetic acid, acetone, sodium	7,928,000 marks	99 1
Kalle & Co A G	Biebrich	6 000 000	Cellulose plastic	5,959,000 marks	99 32
Duisburger Kupferhuette A G	Duisburg	6,000 000	Processing pyrites	5,431,200 marks	90 52
Dr Alexander Wacker Ges fuer Elektrochemische Industrie G m b H	Munich	7 500 000	Electro chemicals, carbide, etc	3,750,000 marks (rest with Alexander Wacker Erben G m b H, Munich)	50
Chemische Werke Lothringen, G m b H	Gerthe, Westphalia	6,000,000	Fixed nitrogen, roof board	3,000,000 marks	50
Deutsche Celluloid Fabrik	Eilenburg	5 000,000	Nitrocellulose, pyroxylin plastics, and products	2,714,000 marks	54 28
Aceta G m b H	Berlin Lichtenberg	2,000 000	Acetate rayon	1,000,000 marks	50
Hoelken-Seide G m b H	Barmen-Rittershausen	3,000,000	Cellulose rayon	1,500,000 marks	50
Gewerkschaft Elise II	Halle on the Saale	[illegible] 000,000	Lignite	5,000,000 marks	100
Grube Auguste bei Bitterfeld A G	Bitterfeld	2,400,000	Lignite and bricks	2,280,000 marks	95
Deutsche Grube bei Bitterfeld A G	do	2 500 000	Lignite, briquets and bricks	2,275,000 marks	91
Consolidirtes Braunkohlenbergwerk "Caroline" bei Offleben A G	Halle on the Saale	(1)	Lignite, briquets	2,215,800 marks	92 03
Zuckerfabrik Koerbisdorf A G	do	2,700 000	Lignite reserves	2,452,800 marks	90 81
Wachtberg-Gruppe, Braunkohlenwerke	Frechen (Cologne)	1,070,000	Lignite and briquets	Majority (all plants are leased to I G)	
Braunkohlenwerk Hermine G m b H	Bitterfeld	300,000	Lignite	Majority	
Doerstewitz-Rattmannsdorfer Braunkohlen-Industrie Gesellschaft	Halle	500,000	Lignite and briquets	do	
Braunkohlengrube Elsa G m b H	Sandersdorf (Kr Bitterfeld), Halle on the Saale	30,000	Lignite	do	
Wallendorfer Kohlenwerke A G	Halle	500,000	do		100
Gewerkschaft Garsdorf F Wiedenfeld			do		
Gewerkschaft Tannenberg	Schoenewitz		Lignite reserves with Zuckerfabrik Koerbisdorf	Majority	
Deutsch-Koloniale Gerb und Farbstoff G m b H	Karlsruhe-Rheinhafen	1 200,000	Tanning and dye extracts and related products	do	

Elektrochemische Werke G m b H	Berlin and Bitterfeld	1,200,000	Oxalic and other organic acids, synthetic precious stones	do	
Deutsche Edelsteingesellschaft vorm Hermann Wild A G	Idar	240,000	Synthetic precious stones	Majority through Elektrochem Werke, G m b H	
Aluminiumwerk Bitterfeld G m b H	Bitterfeld	50,000	Aluminum	Considerable	
Elektron-Metall G m b H	Stuttgart and Cannstatt	600,000	"Elektron," a magnesium alloy	Majority	
Elektrometallurgische Werke Horrem A G	Frankfort on the Main	700,000	Electrosmelter production	Considerable	
Chemische Werke Zscherndorf G m b H	Leipzig	240,000		do	
Dominium Steinfurt G m b H	Bitterfeld	75,000	Agriculture	Majority	
Sociedad Electroquimica de Flix	Barcelona	[2] 3,000,000		Considerable	
Wolff & Co K -Ga A	Walsrode	2,500,000	Sporting ammunition, nitrocellulose, viscose products, and electroinsulating materials	Majority	
Titan G m b H	Leverkusen	1,500,000	Titanium compounds	Considerable	
A H Rietzschel, G m b H	Munich	200,000	Photo apparatus	Majority	
Terra-Film, A G	Berlin	3,000,000	Motion pictures	do	
Bayernwerk fuer Holzindustrie und Impraegnierung A G	Kitzingen on the Main	660,000	Wood-preserving, especially poles and sleepers	do	
Masa G m b H	Berlin	500,000	Surfacing metal, wood, board, paper, etc	Considerable (rest to AEG)	
Vereinigte Sauerstoff-Werke G m b H	do	100,000	Selling compressed industrial gases	Considerable (rest to Ges fuer Linde s Eismaschinen)	
Dynamit A G vorm Alfred Nobel & Co	Cologne	(3)	Explosives, etc	Through I G treaty	
Rheinisch-Westfaelische Sprengstoff A G	do	(4)	Pyroxylin plastic, cellon, Trolit, insulating materials, threadless steel pipes	I G treaty	
"Griesogen" Griesheimer Autogen-Verkaufs-G m b H	Frankfort on the Main, Griesheim	10,000	Selling metal cutting and welding apparatus, steel bottles, and rare gases		100
Koeln-Rottweil A G	Berlin	100,000	Licensing and technical consulting	Majority	
Westdeutsche Sprengstoffwerke A G	Cologne	2,000,000	Explosives	Considerable	
Carbonit A G	do	1,500,000	Activated carbon	Majority	
Sprengstoffwerke Dr R Nahnsen & Co A G	do	(5)	Explosives	do	
Agfa Ansco Corp	Binghamton, N Y	(6)	Film cameras, lacquers		
British Breda Artificial Silk (Ltd)	London	[7] 1,000,000	Rayon	Minority	
Behringwerke A G	Marburg, Lahn	2,300,000	Sera and pharmaceutics	do	
R Wedekind & Co G m b H	Uerdingen	1,500,000		do	
Anilinfarbenfabriken Durand & Huguenin A G	Basel	[8] 2,000,000	Dyes and chemicals	Through I G Chemie Basel	
Fabricacion National de Colorantes y Explosivos	Barcelona	[2] 7,000,000	Dyes and explosives	Considerable	
A G fuer Chemische Industrie	Gelsenkirchen-Schalke	3,500,000	Acids, lithopone, and Glauber salts, mineral colors	Minority	

[1] 7,200 shares preferred, 2,400,400 marks common stock
[2] Pesetas
[3] 37,500,000 marks common stock, 125,000 preferred shares
[4] 12,000,000 marks common stock, 2,160,000 preferred shares
[5] 466,400 marks common stock, 233,600 preferred shares
[6] $7,000,000 prepared shares ($5,050,000 issued), 350,000 common shares (300,000 issued)
Pounds sterling
[8] Swiss francs

REVISED DATA ON THE GERMAN DYE TRUST STRUCTURE—Continued

Company	Location	Capital (marks)	Production	Dye trust share	Per cent
Norsk Hydro Elektrisk Kvaelstof Aktieselskab	Notodden, Norway	(9)	Arc and direct ammonia synthesis, fixed nitrogen	Through I G Chemie Basel	-------
Internationale Gesellschaft fuer Chemische Unternehmungen, A G	Basel	(10)	Holding company for foreign (European) securities	Agreement guaranteeing payment of dividend	-- - -
American I G Chemical Corp	New York	(11)	Holding company for American interest	Through I G Chemie Basel	-
Deutsche Gasolin A G	Berlin Schoeneberg	11,000,000	Marketing synthetic and other petroleum hydrocarbons	-- -- -- --- - -- --- --- -	--

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[9] 72,352,440 Norwegian crowns common stock and 4,500,360 crowns preferred In 1927, 19,213,200 crowns, bearing the right to participate in dividend payments from Jan 1, 1930, were exchanged for I G shares

[10] 290,000,000 Swiss francs, 200,000 francs registered common stock 20 per cent paid in, 50,000,000 francs bearer common stock, fully paid in, 40,000,000 francs registered preferred shares 20 per cent paid in After being fully paid in the registered common shares are to be transferred to bearer common shares

[11] 6,000,000 common shares of no par value, divided into 3,000,000 common shares A (400,000 issued) and 3,000,000 common shares B (fully issued)

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U. S. DEPARTMENT OF COMMERCE
R P LAMONT, Secretary
BUREAU OF FOREIGN AND DOMESTIC COMMERCE
WILLIAM L COOPER, Director

MARKETS FOR SAWMILL AND WOODWORKING MACHINERY IN SCANDINAVIA AND THE BALTIC STATES

Trade Information Bulletin No 691

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FOREWORD

With the exception of Denmark, the Scandinavian countries and the Baltic States are characterized by extensive forest areas These have given rise to sawmill and woodworking industries which in most of the countries are very important, if not the most important, activities Hand labor is commonly used in the Baltic States, but in the other countries the sawmill and woodworking industries are rather highly developed and there is a correspondingly active market for high-grade sawmill and woodworking machinery

In Sweden, and to a lesser extent in Norway and Finland, there is a well-developed sawmill and woodworking machinery industry, which supplies most of the domestic demand and, especially in the case of Sweden, exports machinery to neighboring countries Moreover, considerable amounts of German and some English and French equipment are also found, and there has been, in the past, comparatively little demand for American machinery of that type, except equipment for producing plywood, of which American exporters supply an appreciable share

While the market is highly competitive, it is believed that sales of American plywood machinery can be increased steadily, and that there is room for expansion in other lines To assist in accomplishing such results, this bulletin describes the sawmill and woodworking activities in the various Scandinavian and Baltic countries, outlines the methods now being followed, shows the various types and origin of the machinery in use, and gives practical hints as to the best way to expand old and secure new business

This bulletin is one of a series covering world markets for sawmill and woodworking machinery which is being issued by the Industrial Machinery Division of the Bureau of Foreign and Domestic Commerce That division desires to assist American machinery exporters interested in these markets, and, on request, will gladly furnish additional information

WILLIAM L COOPER, *Director*,
Bureau of Foreign and Domestic Commerce.

MAY, 1930.

MARKETS FOR SAWMILL AND WOODWORKING MACHINERY IN SCANDINAVIA AND THE BALTIC STATES

SWEDEN

By T O Klath, American Commercial Attaché, Stockholm

As approximately 60 per cent of the area of Sweden is covered with forests, it is evident that the timber trade and allied industries in the woodworking line, including lumber, manufactures of wood, wood pulp, and paper, are of the utmost importance to the economic life of the country The total value of exports of lumber and products of wood comprises more than one-half of the entire exports of the country, and Sweden is one of the largest world suppliers of these commodities Lumber exports alone comprise about one-fifth of the total exports, and almost 100,000 workers are engaged in the lumber industry as a whole, including sawmill workers, tree fellers, and those engaged in floating logs

The principal kinds of wood in Sweden are pine and spruce, although in the southern sections of the country are found various species of hardwoods, including larch, birch, oak, etc However, the hardwoods are of very minor importance and can be disregarded in so far as the lumber industry of the country as a whole is concerned The only one of any importance is birch, which is used for furniture, interior finish, and general utility purposes, but principally for fuel

Lumber is produced at a very large number of both large and small mills located in all parts of the country, although the large lumber export industry is more or less centered along the coast of the Baltic Sea and the Gulf of Bothnia, the large mills being located at the mouths of the many rivers and canals that transport the logs from the forests to the mill locations However, central and western Sweden also have many large mills According to official statistics, the lumber production in 1927 amounted to about 8,500,000 cubic meters, with a factory value of almost 400,000,000 crowns (A Swedish crown is worth about $0 27) In 1928 exports of lumber (sawn and planed) were valued at over 300,000,000 crowns England is the principal market for Swedish lumber, although other European countries as well as many oversea markets are important buyers

Practically all types of sawn and planed lumber are produced in Sweden, and, in addition, nearly the whole range of miscellaneous wood products, from shooks and lath to spools and wooden mailing cartons, come from Swedish factories A special branch consuming a considerable quantity of aspen wood, much of which is imported, is the match industry

Practically all the lumber exported from Sweden goes by sea in rather small steamers that make a specialty of this trade, while the lumber is distributed within the country for domestic consumption both by rail and by inland water routes During the winter months, when ice conditions make it impossible for steamers to enter Baltic ports north of Stockholm and ports in the Gulf of Bothnia, a certain amount of lumber is transported by rail and shipped from west coast ports, principally from Gotteborg

SAWMILL EQUIPMENT AND METHODS

There is a wide variety of machines used in the Swedish sawmills, but, generally speaking, the large export mills build up their production around the use of gang saws, while circular saws are used in most of the very small mills

The Swedish gang saw is peculiarly fitted for sawing conditions in the Scandinavian territory because of its accurate sawing and the small amount of waste resulting Several Swedish manufacturers make this type of equipment and also export it to other countries No gang saws are imported, with the possible exception of a few units coming from Norway, where similar machines are made It should be noted in this connection that the maximum length of logs is about 35 feet and the average top diameter 8 to 10 inches

After the logs have gone through the gang saws, the resulting slabs are edged on circular saws which also are employed for crosscut work. Rip saws are sometimes used for small-dimension lumber Equipment for producing box shooks, staves, etc , consists of circular saws, etc , especially arranged for the purpose

Practically the entire equipment of Swedish sawmills is produced by several large domestic manufacturers American sawmills equipment has practically no market because, in the first place, it is not built to suit Swedish requirements, and in the second place, it undoubtedly is true that the price of American equipment is much higher than that of the domestic product

Frame saws and other equipment have been improved from year to year The speed at which logs go through the frame saws is much greater at present than it was 10 years ago, and the thickness of the saw blades has been reduced The high cost of labor in Sweden has been an incentive to the development of labor saving devices of various kinds

WOOD UTILIZATION

The tendency also has been to construct machinery of a type that will reduce waste to a minimum The question of reducing the kerf also has received much attention, and this waste is less now than in the past

Wood utilization has been a prominent question in Sweden for many years A great many of the Swedish mills are combined with chemical wood-pulp mills under the same ownership, and these pulp mills absorb a very large part of the sawmill waste It is difficult to estimate the percentage of recovery in Sweden, but authorities are practically unanimous in claiming that waste is less in the large-scale timber industry of Sweden than in any other country where operations are conducted on such a large scale A large group of experts are continually studying the waste problem, and, from time to time, new methods of preventing losses are announced and quickly adopted by the lumber industry as a whole

Various types of power equipment are found in Swedish sawmills, but most of the plants obtain their power from steam generated by sawmill waste However, during the past 10 years the mills have gradually been electrified, each machine being equipped with its own individual electric motor Sweden has large resources of hydroelectric power Coal-fired steam plants at sawmills are unusual

DRYING EQUIPMENT

Most of the Swedish sawmills depend upon air-drying their lumber in large yards adjacent to the mills The lumber is piled very carefully, sometimes on edge, and ordinarily covered with a sloping roof The length of time required for drying depends largely upon weather conditions, etc , but this method appears to have worked out satisfactorily Nevertheless, a number of the larger lumber producers have, during the past few years, installed various types of kilns One large concern has made a few installations, employing steam for heating and large fans to create circulation of the air within the kiln Some steps have been taken to develop a vacuum system for drying lumber, but this method has not yet been perfected While there is a demand for an improvement in drying systems, this question does not appear to be of particularly great importance with the lumber producers However, lumber used in the manufacture of furniture, etc , is carefully dried

WOODWORKING INDUSTRY

The market in Sweden for woodworking machinery other than the equipment required for strictly lumber mills is very large, although most of the machines used are of domestic and German manufacture It should be noted that very many of the large lumber mills are also equipped to turn out planed lumber both for domestic consumption and for export on a large scale These same mills also produce box shooks, lath, barrel staves and heads, as well as many other kinds of wood goods in a semimanufactured state

Separate and distinct from the industries discussed above that are classed as producing semimanufactured wood goods are found the factories that employ the products of such mills as their raw materials In this classification are plants making doors, window frames, panels, parquetry flooring, sectional wooden houses, furniture, and several special products, including cooperage, veneer, etc About 12,000 workers are employed in this branch of the woodworking industry, which is largely centered in the southern third of Sweden

According to American standards, most of these plants are rather small, the total value of the output of joinery products not exceeding 30,000,000 crowns per year, about one-fourth of which is exported Although serious efforts have been made to standardize production, these plants have not attained the large-scale production of many American plants and never will do so Because of the extremely low prices quoted by competitors for doors and other joinery supplies on European markets, principally in England, the Swedish producers have not been able to earn a reasonable profit on investment and, as a consequence, are not financially able to equip themselves with modern machinery This is true generally, although two or three companies have made a better showing

A large number of fairly large and many small factories are engaged in the manufacture of furniture of various kinds At present about 85 per cent of the wood used by these plants is of Swedish origin

Some of the furniture plants are equipped with many special machines of American origin. However, generally speaking, many of the plants are not able to invest the necessary amount of money to purchase modern equipment, although the leaders of these industries seem convinced that American machines are the best obtainable. Most of the equipment in these plants is of Swedish or German manufacture. This is especially true of the smaller organizations, which obtain their mechanical equipment at low prices and often on long terms of credit from local and other European manufacturers. Furthermore, owing to the fact that many furniture plants are located in small villages, the cost of labor is not such an important factor, and it is possible, therefore, to operate at a profit with less efficient equipment.

As previously mentioned, many of the large sawmills produce staves and barrel heads for export. In addition to these, a number of special plants are engaged in this line. Most of their production is consumed on the domestic market. Many miscellaneous wooden products are produced, such as bootlasts, clothespins, wooden toys, etc. The total output of these industries, however, is not important.

In recent years several new plywood factories have been erected in Sweden to meet the domestic demand and also to export. The greater part of the machinery in these plants is of American manufacture, although some of the machines were purchased in Germany or from Swedish producers. It is estimated that the value of American plywood machinery sold in Sweden since 1925 amounts to approximately $275,000. Both pine and birch plywood are produced, the production of the former being the more important.

American equipment has gone into a new plant in Nordmaling that is producing wall board by the explosive process. The license to manufacture this product was obtained from the American owner of the patents. This mill is now producing at the rate of about 5,000 tons per year, and it is planned to double this production in the near future.

It is reported that recently a large Swedish lumber company purchased in the United States complete equipment for a large wallboard factory to be located at Domsjo, the deal involving about $300,000. It is expected that this mill will be in operation before the end of 1930.

Generally speaking, Swedish industry is fully aware of the necessity of modernization and the use of modern equipment, and every effort is being made to equip plants with modern machinery, however, many of the plants are small and lack the necessary capital to modernize their plants. This trend toward increased efficiency is further strengthened by the fact that Swedish workmen are among the best paid in Europe. Very often, however, these plans are dependent upon banks that have financed them. When the companies show small profits, the banks ordinarily refuse to furnish the additional credit necessary to finance machinery purchases.

Electric current is available in nearly all parts of the country, and American machinery manufacturers can, therefore, expect to sell equipment with individual electric drive. The types of current in different parts of Sweden vary greatly.

FOREIGN TRADE IN WOODWORKING MACHINERY

The extent to which Sweden is independent of foreign woodworking machinery is shown by a comparison of the production value and the import and export figures for this type of equipment According to official statistics, the factory value of woodworking machinery of all types produced in Sweden during 1926 amounted to 7,555,964 crowns, while in 1927 (latest year for which official statistics are available) the corresponding figure was 7,330,614 crowns During 1928 imports of this class of machinery totaled 224,781 kilos, valued at 538,742 crowns, while exports during the same year amounted to 2,215,621 kilos, valued at 4,133,918 crowns It will be noted that exports exceed 50 per cent of the total production

Imports and exports of woodworking machinery of various types, as classified by Swedish foreign trade statistics, are shown in the following tables

IMPORTS OF WOODWORKING MACHINERY INTO SWEDEN

Article and country of origin	1926		1927		1928	
	Quantity	Value	Quantity	Value	Quantity	Value
Machines weighing 250 kilos or less	*Kilos*	*Crowns*	*Kilos*	*Crowns*	*Kilos*	*Crowns*
Planers	263	985	944	3,431	300	531
Sawing machines—						
Germany	503	1,095	464	1,268	1,106	2,819
Denmark			360	1,355		
Norway					210	208
United States					150	2,812
Other countries	343	666	120	808		
Total	846	1,761	944	3,431	1,466	5,839
Other machines—						
Denmark	626	1,623	429	1,761		
Germany	988	2,419	1,057	3,344	1,370	6,195
Switzerland	286	1,256				
United States	491	2,785	297	2,879	1,475	8,208
Norway					396	3,971
Great Britain					24	150
Other countries	479	1,214	138	1,073		
Total	2,870	9 297	1,921	9,057	3,265	18,524
Machines weighing from 250 to 5,000 kilos						
Planers—						
Denmark	1,399	4,078	450	1,492		
Germany	3,815	7,323	492	1,320	10,377	16,741
Belgium			690	759	1,740	1,804
United States					3,766	15,786
Total	5,214	11,401	1,632	3,571	15,883	34,331
Sawing machines—						
Norway	5,166	6,269	6,450	6,358	2,214	2,117
Denmark	400	1,161			905	2,716
Germany	3,157	6,250	3,517	9,842	4,039	13,299
Great Britain	1,149	3,715			3,971	9,500
United States	4,028	13,373	3,290	11,211	18,763	63,409
Estonia			2,025	3,402		
France			336	797		
Total	13,900	30,768	15,618	31,610	29,892	91,041
Other machines—						
Norway	1,340	4,135			3,650	7,563
Denmark	500	1,854	3,574	9,047	943	3,029
Germany	38,946	74,057	46,643	86,502	63,982	115,330
Great Britain	650	2,302	6,068	14,328	9,329	26,738
United States	15,683	50,277	5,602	21,806	30,851	109,016
Estonia			670	1,530		
Netherlands					1,620	2,782
Other countries			1,180	1,519	2,180	2,331
Total	57,119	132,625	63,737	134,732	112,555	266,789

IMPORTS OF WOODWORKING MACHINERY INTO SWEDEN—Continued

Article and country of origin	1926		1927		1928	
	Quantity	Value	Quantity	Value	Quantity	Value
Machines weighing more than 5,000 kilos						
Planers—	*Kilos*	*Crowns*	*Kilos*	*Crowns*	*Kilos*	*Crowns*
Germany			8,236	10,348		
Total			8,236	10,348		
Other machines—						
United States	18,064	58,470			28,535	61,205
Germany			31,569	49,843	32,885	60,482
Total	18,064	58,470	31,569	49,843	61,420	121,687

NOTE —Imports of veneer machinery from United States are included under miscellaneous machinery heading and are not shown in above table

EXPORTS OF WOODWORKING MACHINERY FROM SWEDEN

Article and country of destination	1926		1927		1928	
	Quantity	Value	Quantity	Value	Quantity	Value
Machines weighing 250 kilos or less						
Planers—	*Kilos*	*Crowns*	*Kilos*	*Crowns*	*Kilos*	*Crowns*
Norway	3,942	2,800	2,897	7,064		
Denmark	605	1,269				
Russia in Europe			2,416	5,000		
Finland					1,859	3,803
Other countries	453	1,042	749	2,345	1,310	3,566
Total	5,000	5,111	6,062	14,409	3,169	7,369
Sawing machines—						
Norway	944	1,042	4,673	8,632		
Denmark	10,917	17,912	611	1,557		
Estonia	344	1,008				
Latvia	2,673	3,964	1,478	2,108		
Poland	1,541	5,095			6,877	15,656
Germany	422	1,745	1,303	3,811		
Netherlands	2,967	5,133	1,743	3,661	1,447	2,211
Austria	442	1,435				
Argentina	641	1,631				
Finland			5,654	8,749	7,519	10,873
Russia in Europe			1,157	2,520		
Colombia			450	1,731	2,543	8,194
Other countries	2,718	6,834	1,327	2,756	5,132	13,222
Total	23,609	45,797	18,396	35,525	23,518	50,156
Other machines—						
Norway	4,376	9,470	3,320	7,290	2,281	5,112
Finland	6,234	12,445	3,050	6,526	3,595	6,272
Danzig	200	1,040				
Great Britain	668	2,464				
Argentina	718	1,588	604	1,681		
Denmark			1,284	2,572		
Russia in Europe			1,731	7,912		
Germany			443	1,920		
Colombia			906	2,612	765	2,956
Other countries	2,071	5,968	1,662	4,097	4,562	11,555
Total	14,267	32,975	13,000	34,610	11,203	25,895
Machines weighing from 250 to 5,000 kilos						
Planers—						
Norway	32,051	48,147	27,719	39,797	29,075	41,402
Denmark	8,585	14,835	20,301	37,139	17,000	28,080
Finland	98,900	157,197	114,664	178,751	141,390	229,771
Russia in Europe	28,112	56,277	4,386	11,276		
Latvia	13,189	22,135				
Germany	32,758	83,668	36,849	125,842	33,510	96,327
Netherlands	23,876	55,003	32,433	69,040	64,085	126,092

EXPORTS OF WOODWORKING MACHINERY FROM SWEDEN—Continued

Article and country of destination	1926		1927		1928	
	Quantity	Value	Quantity	Value	Quantity	Value
Machines weighing from 250 to 5,000 kilos—Continued						
Planers—Continued	*Kilos*	*Crowns*	*Kilos*	*Crowns*	*Kilos*	*Crowns*
Great Britain	3,632	8,854	12,830	27,510	24,618	50,690
France	3,105	8,430	866	4,763	17,970	37,555
Spain	4,285	9,559	130	1,008	-----	-----
Switzerland	2,145	3,400	6,508	14,883	5,033	11,016
Czechoslovakia	4,820	15,627	-----	-----	8,127	18,984
Yugoslavia	1,110	1,625	-----	-----	-----	-----
Greece	1,217	2,275	-----	-----	-----	-----
Japan	2,164	3,500	1,301	2,660	-----	-----
Mexico	2,736	5,069	1,671	3,117	8,005	14,417
Venezuela	686	1,320	895	1,130	1,941	3,800
Brazil	12,231	10,154	-----	-----	4,225	7,624
Uruguay	6,140	10,253	10,233	14,626	6,787	8,596
Argentina	28,676	50,683	23,480	43,277	20,714	33,041
Chile	5,806	9,606	5,520	10,543	2,656	3,848
Colombia	2,830	4,129	14,904	27,435	30,388	54,109
Bolivia	3,693	7 506	5,039	7,288	3,564	7,636
Australia	20,622	39,768	4,319	8,489	6,713	13,066
New Zealand	880	1,867	-----	-----	1,630	3,074
Estonia	-----	-----	1,415	1,504	10,935	22,745
Danzig	-----	-----	2,700	5,301	4,588	7,421
Belgium	-----	-----	4,661	7,768	-----	-----
Portugal	-----	-----	1,486	3,600	-----	-----
Austria	-----	-----	2,744	6,840	5,111	16,333
Bulgaria	-----	-----	2,490	3,682	-----	-----
British South Africa	-----	-----	1,777	3,870	3,806	7,425
Other Africa	1 501	4,271	1,320	3,500	-----	-----
British East Indies	-----	-----	525	1,934	-----	-----
Central America	-----	-----	840	1,600	-----	-----
Peru	-----	-----	1,165	2,360	-----	-----
Other countries	647	1,165	297	1,029	3,742	6,561
Total	346,397	636,323	345,558	671,562	455,612	849,613
Sawing machines—						
Norway	40,594	65,560	24,411	37,506	20,715	30,945
Denmark	5,972	10,103	6,097	11,736	5,084	10,044
Finland	102,611	193,484	107,057	210,538	113,411	208,772
Russia in Europe	106,545	224,129	133,471	320,992	103,869	240,239
Estonia	935	1,828	3,103	5,530	16,728	33,270
Latvia	45,074	91,279	5,605	11,053	3,265	4,686
Poland	4,899	11,417	14,844	36,971	16,693	41,560
Germany	10,598	28,857	21,842	52,155	24,863	65,172
Netherlands	9,242	17,068	9,377	17,478	35,297	67,010
Belgium	12,697	12,211	-----	-----	-----	-----
Great Britain	13,498	24,212	13,404	26,020	10,404	18,782
France	6,229	11,309	-----	-----	1,703	3,719
Austria	2,075	4,578	8,882	21,657	17,230	41,534
Czechoslovakia	4,679	12,883	-----	-----	12,422	31,050
China	3,227	6,610	-----	-----	-----	-----
Japan	1,408	2,500	-----	-----	-----	-----
Mexico	840	1,855	4,312	8,498	4,300	6,951
Cuba	1,517	1,714	-----	-----	-----	-----
Uruguay	5,358	6,980	6,493	7,578	2,559	2,838
Argentina	12,247	16,160	17,741	23,888	23,023	31,279
Chile	3,771	4,459	4,087	5,978	1,954	2,352
Peru	1,332	2,619	1,846	3,208	-----	-----
Columbia	1,905	3,762	6,638	13,428	23,081	32,382
Bolivia	4,270	5,090	5,669	8,610	-----	-----
Australia	3,105	4,774	-----	-----	-----	-----
Rumania	-----	-----	-----	-----	14,360	35,058
Canada	-----	-----	-----	-----	1,842	3,525
Brazil	-----	-----	5,229	10,043	11,227	13,806
Portugal	-----	-----	9,454	21,475	-----	-----
Hungary	-----	-----	2,204	6,046	-----	-----
British South Africa	990	1,600	1,045	2,315	2,667	4,576
Algeria	-----	-----	900	1,737	-----	-----
Other Africa	-----	-----	2,640	4,900	-----	-----
United States	-----	-----	2,133	4,907	-----	-----
Central America	-----	-----	1,140	1,688	-----	-----
Other countries	2,134	3,281	-----	37	7,336	10,110
Total	407,752	770,322	419,624	875,972	474,033	939,660

EXPORTS OF WOODWORKING MACHINERY FROM SWEDEN—Continued

Article and country of destination	1926		1927		1928	
	Quantity	Value	Quantity	Value	Quantity	Value
Machines weighing from 250 to 5,000 kilos—Continued						
Other machines—	*Kilos*	*Crowns*	*Kilos*	*Crowns*	*Kilos*	*Crowns*
Norway	14,962	40,752	12 726	21,060	25,627	39,691
Denmark	9,053	15 226	2,557	4,464	6,523	18,129
Finland	24,905	42,561	48,973	90,799	68,059	115,414
Russia in Europe	71,824	147,425	16,806	37,840	-----	-----
Poland	2,475	4,200	-----	-----	-----	-----
Netherlands	8,434	17,863	2,587	5,108	3,099	6,811
Belgium	247	1,401	-----	-----	-----	-----
Great Britain	106	1,183	1,403	3,617	2,900	7,383
Czechoslovakia	1,005	1,785	-----	-----	-----	-----
British East Indies	4,477	11,290	400	3,130	22,421	47,523
China	7,140	12,065	-----	-----	1,045	2,090
Japan	4,170	8 000	-----	-----	-----	-----
Canada	4,040	10,400	-----	-----	-----	-----
Mexico	5,318	11,043	3,720	9,507	8,376	21,733
Cuba	2,436	6,906	-----	-----	-----	-----
Other West Indies	-----	-----	279	1,425	-----	-----
Brazil	1,726	4,712	1,488	4,219	3,788	6,018
Uruguay	8,849	19,014	20,437	44,265	9,183	19,984
Argentina	33,562	72,343	36,604	79,578	48,448	94,436
Peru	1,295	2,189	2,628	6,445	-----	-----
Colombia	1,660	3,846	11,501	28,269	15,313	38,149
Bolivia	2,442	5,698	4 774	10,753	6,147	13,470
Australia	797	2,560	-----	-----	-----	-----
Iceland	-----	-----	630	1 996	-----	-----
Danzig	-----	-----	1,961	4,518	-----	-----
Germany	-----	-----	4,520	12,137	-----	-----
Irish Free State	-----	-----	570	1,544	-----	-----
France	-----	-----	3,285	7,379	-----	-----
Rumania	-----	-----	634	3,105	-----	-----
British South Africa	-----	-----	499	1,164	-----	-----
Philippines	-----	-----	7,144	13,128	254	3,473
Central America	-----	-----	528	1,202	-----	-----
Chile	-----	-----	2,074	4,507	3,789	8,007
Germany	-----	-----	-----	-----	3,642	8,832
France	-----	-----	-----	-----	1,080	2,199
Portugal	-----	-----	-----	-----	2,495	7,360
French East Indies	-----	-----	-----	-----	1,540	3,490
Venezuela	-----	-----	-----	-----	1,073	2,701
Other countries	1,645	4,259	1,170	2,697	7,336	10,110
Total	212,568	446,721	189,898	403,856	238,458	476,952
Machines weighing more than 5,000 kilos						
Planers—						
Finland	27,528	45,612	23,638	58,040	-----	-----
Russia in Europe	16,220	27,955	-----	-----	22,748	60,141
Germany	4,766	15,112	35,976	83,003	55,026	123,947
Netherlands	13,359	24,972	-----	-----	55,174	110,985
France	19,478	29,832	-----	-----	-----	-----
Spain	5,497	11,830	-----	-----	9,591	16,160
Latvia	-----	-----	8,532	12,480	-----	-----
Norway	-----	-----	-----	-----	5,513	6,652
Great Britain	-----	-----	-----	-----	12,720	22,607
Czechoslovakia	-----	-----	-----	-----	5,144	15,805
Other countries	337	1,078	600	1,094	186	1,197
Total	87,185	156,391	68,746	154,617	166,102	357,494
Sawing machines—						
Georgia	11,388	28,790	-----	-----	-----	-----
Total	11,388	28,790	-----	-----	-----	-----
Other machines—						
Russia in Europe	2,070	4,750	-----	-----	-----	-----
Latvia	6,600	9,000	-----	-----	-----	-----
Denmark	-----	-----	-----	-----	13,825	28,600
Great Britain	-----	-----	-----	-----	3	55
France	-----	-----	-----	-----	6,878	24,000
Other countries	7	95	-----	-----	-----	-----
Total	8,677	13,845	-----	-----	20,706	52,655

EXPORTS OF WOODWORKING MACHINERY FROM SWEDEN—Continued

Article and country of destination	1926		1927		1928	
	Quantity	Value	Quantity	Value	Quantity	Value
Machines weighing more than 5,000 kilos—Continued						
Saw frames—	*Kilos*	*Crowns*	*Kilos*	*Crowns*	*Kilos*	*Crowns*
Norway	27,533	51,316	2,797	8,101	17,717	22,639
Finland	172,173	268,119	221,282	384,915	269,805	447,808
Russia in Europe	347,279	619,004	571,990	1,018,454	232,946	425,526
Poland	3,130	5,441	3,172	5,625	37,025	62,979
Germany	11,850	21,390	34,564	52,698	44,905	83,928
Netherlands	16,808	21,792	1,973	2,828	56,717	73,288
France	336	1,293			1,706	2,153
Austria	20,526	35,453	2,356	6,921	26,555	47,143
China	681	2,320				
Japan	8,365	12,600				
United States	1,471	2,146			27,430	43,305
Estonia			10,977	14,775	43,633	58,843
Great Britain			7,924	10,981		
Czechoslovakia					56,023	95,827
Colombia					7,815	9,074
Other countries	849	2,635	523	1,545	542	1,611
Total	611,001	1,043,509	857,558	1,506,844	822,819	1,374,124

MARKET FOR AMERICAN MACHINERY

Most of the difficulty in selling American woodworking machinery in Sweden arises from price and credit considerations. Most Swedish and German equipment, although considered lower in capacity and efficiency, sells for much less than similar American machinery. Swedish producers are in a position to grant terms as long as two years, and sometimes it is possible to obtain a renewal at the expiration of that time. Both Swedish and German manufacturers demand a down payment of one-third of the selling price.

Local dealers are of the opinion that many more American machines could be sold if some means of granting long credits were available and if such credits would not cost the buyer too much. Both Swedish and German manufacturers are selling equipment in Sweden under hire-purchase contracts which enable them to repossess the machine in case payments are not made in accordance with agreement. While conditions affecting the sale of woodworking machinery are entirely different from those involved in selling high-priced automobiles, the fact remains that the large sales of the latter in Sweden would not be possible without making use of the part-payment plan of financing.

An attempt is made in the following to summarize the market possibilities of American woodworking machinery in various main groups of the Swedish industry.

Sawmills.—It is not ordinarily possible for American machines to meet the competition of domestic manufacturers for strictly sawmill equipment, such as gang saws, circular saws, dry kilns, conveyors, etc. Those mills producing planed goods use Swedish planers almost exclusively. The larger modern American planers are said to have too great a capacity for the small output of the average Swedish mill, where there is practically no demand for the high speeds characteristic of the American product. Efforts have been made to sell planers, but without success. Another objection appears to be the local preference for a plane-box type of planer instead of the cutter-box type. A few of the larger sawmills, however, seem to be interested in American band saws of the most modern type

Joinery mills—All doors made in Sweden are of the tenon type, it being impossible to produce the dowel type because of the large number of knots found in Swedish lumber Attempts to produce dowel-type doors have shown that the waste of material because of knots is very great The entire joinery industry is in poor financial condition, owing to severe competition among the mills for domestic business and also to the competition of American doors in Great Britain and other export markets The banks refuse to grant further credits to these concerns for the purchase of equipment Furthermore, the long credit granted by domestic machinery producers enables them to secure nearly all the business A few American-made molders and sanders and also a few special machines are in operation at one or two of the largest joinery plants There should be a chance to sell some American equipment for making oak parquet floor blocks, as the production in this line is increasing However, for the reasons stated, dealers feel that there is little prospect of increasing sales of American joinery equipment

Furniture factories—Undoubtedly the furniture branch of the Swedish woodworking industry offers the brightest sales prospects American equipment in these plants includes sanders, scrapers, cut-off saws, boring machines, carving machines, gluing machines, rip saws, etc While the excellence of the American product is admitted, sales are handicapped by price and credit considerations Although certain machines in this classification are made in Sweden and Germany, most of them are not considered so efficient as the American

Plywood factories—There are nine veneer plants in Sweden Three of these are fairly large and are equipped with modern machinery, most of which is of American make Of the three most important plants, one has approximately 95 per cent American machinery, the second about 80 per cent, and the other about 50 per cent, the remainder of the equipment being Swedish and German The less important plywood factories use German and Swedish machines almost exclusively There does not seem to be any expansion contemplated in the plywood production, and sales of American machines will be largely confined, therefore, to replacements.

Filing-room equipment—American machines for filing saws are acknowledged to be highly efficient, and it is possible that some of the larger sawmills will purchase American equipment in the near future

Portable woodworking machinery—Although German competition is keen, it is believed that American portable saws, planers, etc , would find a small market provided proper sales representation is obtained

[Lists of the largest sawmills, builders' joinery manufacturers, furniture manufacturers, and miscellaneous woodworking industries in Sweden, as well as of the most important importers and agents handling woodworking machinery there, are available in the Commercial Intelligence Division of the Bureau of Foreign and Domestic Commerce, Washington, D C]

NORWAY

By Marquard H. Lund, American Commercial Attaché, Oslo

Lumber processing is one of the oldest Norwegian industries The first sawmills are said to have been established about the year 1500 From that time until the second half of the nineteenth century, the sawmill industry was probably the most important in Norway, but since then the paper and pulp industry has developed very rapidly and has replaced the sawmill as the principal user of logs

SAWMILL INDUSTRY

In the 1929 production statistics, sawmills are classified as follows.

Small sawmills	1,607
Other sawmills	135
Sawmills, also operating planing mills	350
Total	2,029

SMALL SAWMILLS

The small sawmills are found in every Norwegian forest district, but especially in the interior of southeastern and eastern Norway These mills are generally operated by the forest owners themselves Forest operation that merely cuts the tree and sells it as a log is no longer profitable It is only done where floating provides cheap transportation These small sawmills are usually located near a railroad station During the last few years trucks have been used more and more for transporting lumber, especially in eastern Norway, so that the location of the mills is no longer entirely dependent upon proximity to railroad facilities.

Some of the mills are portable and some of a more permanent character, although even the latter are often housed in open sheds In both cases, however, the machinery used is similar, usually a double circular headsaw with the necessary auxiliary equipment Some of the mills also have machinery for cutting barrel staves In that case, the equipment consists of saw, trimmer, resaw, edger, trimmer for barrel staves, filing machine, and, in some of the better mills, conveyors Gasoline engines and steam engines provide power (of 8 to 10 horsepower), as a rule Steam engines are usually portable, utilizing sawdust as fuel

The circular saws used are thinner at the edge than in the center They are not as accurate in operation as gang saws, and the waste is considerably more, which is not such an important factor in these small mills, however, where the cost of stumpage is rather low Consequently, the owners do not make any special effort to eliminate waste

The very character of these small mills makes rather difficult the selling of up-to-date American machinery, which justifies its price, in comparison with European, only on a production basis High-speed production is not an advantage in Norway

The market for equipment is quite large, but it is not particularly promising for modern American machinery Norwegian and Swedish manufacturers cater to this business and practically control it So far, at least, manufacturers from other countries have secured very little, if any, business The advantages usually claimed for American machinery make no special appeal in Norway High-speed production is not an important factor, as already mentioned Neither is labor-saving Human labor is readily available—in fact, there is generally a surplus—and wages are low Conveying machinery is seldom used Mills of more permanent character, located near water, use conveyors for taking the logs from the water to the mill, but in the mill the logs are moved by hand Piling and loading is also done without the use of labor-saving devices The only mechanical device sometimes used is a track from the piles to the loading rack, with trucks drawn by a horse or pushed by hand

Domestic woods are used, pine and spruce almost exclusively, with a very small percentage of birch and oak The usual sizes turned out are 3½, 3, 2½, and 2 inches thick, and 11, 9, 8, 7½, 7, 6½, 6, and 5½ inches wide Short lengths predominate, 14 to 16 feet is a rather high average

The stock is always piled in the open and air dried It is shipped green only when sold to one of the few planing mills operating drying kilns Most of the production from the small mills is sold to planing mills or the domestic building trade Very little goes into the export market The capacity of each mill is not large, and as they are operated only part of each year, no production statistics are available

OTHER SAWMILLS

The 135 mills classified as "Other sawmills" generally cut for export Most of them are situated on the coast, especially on the western side of the Oslo Fjord As a rule, these mills are smaller than those in Sweden and Finland Operators claim it is more profitable than operating larger plants, the reason being that Norwegian mills generally do not have forest areas of their own but buy logs in the open market An annual production of 6,000,000 to 8,000,000 board feet is considered a fairly good average for one of these export mills

The cost of stumpage for these mills is comparatively high, so that it is of paramount importance to have machinery utilizing the log to the fullest extent Speed is of secondary importance For that reason, machinery of Norwegian and Swedish make is preferred, having been developed along these lines Auxiliary equipment, such as filing machines, conveyors, etc , are of other origin

Gang frame saws are used exclusively, which cut the entire log at one time The American method of cutting a log, so as to get as much clean lumber as possible out of every log, is unknown in Norway Perhaps one reason is that the wood is very knotty, making it almost impossible to saw out a clear piece Gang frame saws are claimed to be the most practical for local conditions

Practically all of the mills which generally cut for export use conveyors for taking the logs from the pond to the saw Rail systems are popular, and piling devices are used also, but hand piling is still the most common Drying kilns are not used The lumber is always air dried, requiring from two to six months seasoning

Pine and spruce is the principal raw material The sizes produced are the same as in the small mills, but 1½, 1¼, 1, and ¾ inch in thickness and down to 3 inches in width are common sizes

Profitable operation depends to a large extent upon utilization of waste, and these mills are very efficient in this respect Everything is cut into something of commercial value, and the rest is used or sold for fuel

Official 1927 production statistics give figures for 211 mills with more than 12,000 hours per year These 211 mills produced 720,864 cubic meters, with a value of 30,438,936 crowns Of this total, approximately 453,000 cubic meters were for sale The balance was used as raw material by planing mills and other woodworking industries

WOODWORKING INDUSTRY

The first Norwegian planing mill was constructed in 1863 The industry developed rapidly, until 368 mills were in operation at the end of 1927 The greater number of these are located on the eastern side of the Oslo Fjord and in the Drammen and Larvik districts on the western side These planing mills are mostly operated in connection with sawmills Those that are not, buy their lumber requirements mostly from the small sawmills

Planing mills work mostly with domestic woods, pine and spruce, which is dried somewhat longer than the rough stock for export and contains about 25 per cent moisture

The equipment used is usually modern and efficient, designed for the greatest possible saving in raw material It generally consists of double or single circular resaws with blades as thin as 22 Birmingham gage, trimmers, edgers, planers, piling machines, etc Swedish and Norwegian machinery has the preference Only the auxiliary equipment is of other origin

The Norwegian planers are made in several sizes for high-speed operation

There are 21 box factories in Norway which use machinery made in Norway Some box factories are also operated in connection with sawmills Production in 1927 was as follows

	Crowns
Box shooks made in sawmills	1, 944, 987
Box shooks made in independent factories	1, 692, 032
Large boxes	1, 193, 934
Small boxes	821, 708

There are 21 factories making wooden barrels with Norwegian machinery In addition, some of the larger sawmills make barrel staves as a by-product Total production of barrels and barrel staves amounted to approximately 2,500,000 crowns in 1927

One plywood and veneer factory is operating in Norway, in which 90 per cent of the equipment, including drying, is of American manufacture Another similar plant is now being contemplated

MARKET SURVEY

The sawmill industry of Norway, divided into two distinct classes, presents two separate problems for the American manufacturer of machinery

The small mill can hardly be considered a prospect It has been suggested, however, that an efficient portable mill might find a market in Norway Such a mill, operated with a track-laying type of tractor so that it could be taken from place to place even during the winter, might be made to pay if sold to people who would contract to saw the annual cut of forest owners that do not have their own equipment On such a basis, low cost of operation would offset a higher initial cost

Logging is carried on during the winter months Farmers in the wooded districts supplement the scant income from their farms by cutting the trees and taking them out of the forests on sleds, drawn by horses The logs are piled on the ice and floated to the mills in the spring A certain percentage is shipped by rail also

Sawmill machinery used in Norway would probably be considered obsolete from the American point of view, but it seems to answer the purpose. The principal advantage of American machinery, high production at a low cost per unit, does not seem to make much impression, and it is pointed out that production with such equipment would be so large as to make it necessary to use the plants only two to three hours a day. Furthermore, much of the Norwegian lumber exports are shipped rough sawn to England and are finished and manufactured into moldings, etc., in English woodworking plants.

Generally speaking, the industry can not be called prosperous, and, as a result, funds for the purchase of new equipment are not plentiful.

Imports of woodworking machinery into Norway for the last three years by countries of origin are as follows:

IMPORTS OF WOODWORKING MACHINERY INTO NORWAY

[In crowns]

Country of origin	1926	1927	1928
Sweden	246,400	373,800	351,000
Germany	566,700	405,200	818,700
United States	100,800		
Total, including others	1,013,700	924,700	1,323,300

The reason Germany shows up so well in these figures is that paper and pulp machinery are included with woodworking machinery in the official records. The imports from Germany are mostly paper and pulp machinery. Sweden is now the most important foreign supplier of woodworking machinery.

The industry is not expanding at present. In fact, competitive conditions in the lumber industry generally, including sawmilling and woodworking, have been such for several years that production and exports have declined from year to year. The 1929 exports show some increase over 1928, but the reverse tendency was in evidence during the previous years. Greater profits can be made in converting logs into paper and pulp, and expansion is more in that direction and will probably continue to be so for some time to come.

The possibilities for selling American woodworking machinery do not appear very great, but it might be possible further to stimulate sales, although the usual method of doing it through local agents only does not seem very effective. A properly trained sales engineer cooperating with the agency should be able to do more, as his time could be divided between Norway, Sweden, and Finland, working with the agents in each country.

[A list of Norwegian dealers in woodworking machinery is available in the Commercial Intelligence Division of the Bureau of Foreign and Domestic Commerce in Washington.]

DENMARK

By H. Sorensen, American Commercial Attaché, Copenhagen

The total Danish forest area covers 375,000 hectares, of which about 30 per cent is beech, 5 or 6 per cent oak, and 60 per cent pine and spruce, the latter planted. The forest area has increased appreciably during the past 25 or 30 years, owing to careful reforestation and to the gradual planting of heather land and other waste land with pine and spruce A number of these plantations are now gradually coming of age, and can be used for timber, boxes, boards, and other purposes The beech is the Danish national tree and, besides being used extensively for firewood, is also used very extensively for the production of barrel staves and bottoms and for furniture Shipment of logs is mainly by horse drag or, in a few cases, by tractor, then by truck or railroad There is practically no floating

SAWMILL INDUSTRY

With so small domestic forest resources, which to a large extent consist of firewood rather than of wood which can be used extensively for production of lumber, it is, of course, natural that the sawmill industry is of correspondingly small proportions While there are a number of sawmills in Denmark, they are all very small and usually to some extent definitely connected with or a part of other industries, such as wooden-shoe, furniture, box, or barrel factories Few, if any, of the Danish sawmills are of the forest mill type, but rather a combination of sawing, planing, box making, or other industries. Of true sawmills there are only about a dozen, and most of these are relatively small

Of the machinery used in Danish sawmills, the block saws are chiefly of German manufacture Band saws and circular saws are chiefly of Danish or Swedish manufacture Molding machines and fret saws are partly of Danish and partly of Swedish origin Two types of carriages and feeding devices appear to be in use The most popular is described as having a leather packing guide This type is chiefly of Swedish make The other type, which is chiefly of German manufacture, and which is used but little, is equipped with a ball-bearing guide

The Danish sawmills, on the whole, apparently find their present equipment satisfactory Most of it has been installed during the past 8 or 10 years and is, therefore, considered quite modern. In view of the scarcity of lumber supplies and the high cost of labor, there is, however, unquestionably always a demand for machines promoting the greatest possible economy, both of lumber and of labor The width of the kerf is of relatively small importance as only smaller quantities of higher-priced logs are cut in Denmark

The logs and lumber are generally moved by hand power Only a few of the largest sawmills have cranes, loading devices or other conveyor facilities, and the samll size of the average mill tends to restrict the potential market for such devices

Wood utilization is not much discussed in Denmark The smallness of the forest resources has long since made economy in connection with lumber products an absolute necessity It is impossible to say just what the percentage of recovery is, but it is known that practically every stick of any value whatever is used for some purpose or other

The majority of Danish sawmills use steam as power, and the steam boilers use chiefly lumber waste as fuel The other woodworking industries, as a rule, use electricity as power

The lumber produced in Danish mills is usually sold more or less seasoned The sawing takes place partly under cover and partly in open air So far, kiln drying has not been used to any extent, but during the past couple of years a number of Danish mills have experimented with German kilns operating on the chemical and steam principle A certain chemical was spread on the wood, after which it was subjected to steam heat for 24 to 36 hours The particular advantage of these kilns was supposed to be the quick action The equipment apparently did not give satisfactory results, but the interest shown by Danish mills in it tends to indicate that there is a real need and a growing demand for moderate-priced effective kiln equipment The kilns used are chiefly of the steam-heat type

WOODWORKING INDUSTRY

The Danish woodworking industry comprises a relatively large number of small and medium-sized establishments, but no really big plants There is apparently at present a gradual though not very pronounced trend toward larger production units The industry, taken as a whole, is of very modest proportions It is based chiefly on supplying the domestic demand arising from a population of 3,500,000 with windows, doors, and other building woodwork, and also supplies the larger share of furniture and store fixtures sold in Denmark and a smaller share (estimated around 50 per cent) of the box and barrel material used there

Practically all the plants are small, there being perhaps less than a dozen of medium size and practically none which, according to American standards, might be considered large

The machinery used in larger Danish woodworking plants is of comparatively modern design, many of the factories having gradually modernized their equipment since the war In a rather large number of the smaller plants a considerable part of the mechanical equipment is, however, unquestionably more or less obsolete, largely because of the fact that the financial outlay involved in modernization is not obtainable or justified by the business outlook In the case of these small operators it is, therefore, doubtful whether much new equipment could be sold

The woods most used in Denmark are Swedish pine, German and American oak, Cuban and African mahogany, Swedish birch, and Danish beech and pine The timber is usually air dried and is later subjected to a kiln-drying process

While the local establishments within the sash, door, and window manufacturing industry generally maintain a fairly high degree of efficiency, the vast number of the smaller shops are not efficiently managed, and even among the larger or medium-sized mills it appears to be a fact that they are too small to permit effective employment of modern methods

Wages paid in this industry are relatively high as compared with those in other European countries For skilled workers in the sash and door industry as well as in the majority of the furniture factories, etc , the wage is 1 45 crowns per hour in Copenhagen and 1 20 crowns per hour in the Provinces (A Danish crown equals about $0 27) For unskilled labor 1 02 crowns per hour is paid in Copenhagen and 90 Ore per hour in the Provinces

Mass production, as such, is not known in the Danish woodworking industry, and it is, on the whole, a fact that the industry is still more or less in the craftsman stage of development

The total annual consumption of woodworking machinery had an estimated value of around 500,000 crowns (approximately $35,000). Of this, the domestic industry supplies roughly 75 or 80 per cent. The balance is divided between Germany and Sweden. The domestic production embraces practically all the more common types of woodworking machinery, such as circular saws, various kinds of planes, molding machines, mortise machines, and tenon-cutting machines. Swedish and German machines are highly regarded in the local market, and certain makes are sold quite widely. Box and barrel machinery is imported from Sweden only, and the majority of the more intricate machines, as a matter of fact, are usually of German or Swedish origin. The Swedish machinery is generally sold strictly on a quality basis, while German machines enter presumably on a price basis. The prominent place occupied by Swedish machines in the local market is, of course, due largely to the fact that the Swedish woodworking industry is so highly developed that the Swedish woodworking machinery industry, as a result, has been able to reach a correspondingly high development.

American participation in the Danish market is unimportant.

The following table shows Danish production, imports, and exports of woodworking machinery during the last three years.

DANISH PRODUCTION, IMPORTS, AND EXPORTS OF WOODWORKING MACHINERY

Item and country	1925	1926	1927
Production	1,000,000	763,000	705,000
Imports			
Germany	40,000	50,000	66,000
Sweden	34,000	21,000	37,000
Other countries	2,000	3,000	5,000
Total	76,000	74,000	110,000
Exports			
Norway	37,000	26,000	22,000
Sweden	34,000	12,000	11,000
Finland	60,000	49,000	84,000
Russia		80,000	
Belgium	71,000	17,000	
France	154,000	111,000	146,000
Argentina	18,000	10,000	
Iceland		14,000	
Latvia	9,000		
Other countries	34,000	27,000	28,000
Total	417,000	346,000	291,000

Certain quantities of woodworking-machinery parts and accessories are, however, being imported from the United States, partly for replacements and partly by the Danish woodworking-machinery industry for assembly purposes. Price and credit difficulties, and a feeling on the part of consumers that the American woodworking machines do not conform to local requirements and are not well adapted to the handling of the woods used locally, are assigned as the chief reason why the United States has not secured a larger share of the available business.

[A list of the more important sawmills and sash and door, furniture, box, and other woodworking factories in Denmark is available in the Commercial Intelligence Division of the Bureau of Foreign and Domestic Commerce, Washington, D. C.]

LATVIA

By F C Sommer, American Trade Commissioner, Riga

The woodworking industry ranks first among the industries of Latvia in number of employees, second in power consumption, and third in number of establishments

SAWMILL INDUSTRY

The wood worked by the domestic sawmills is obtained largely from local forests, which cover 28 per cent of Latvia's area Pine covers 48 per cent of the forest area, spruce fir 29 8 per cent, birch 11.9 per cent, and aspen and alder each 4 9 per cent

The sawmill industry on January 1, 1927, was distributed geographically as follows

GEOGRAPHICAL DISTRIBUTION OF LATVIA'S SAWMILL INDUSTRY

Location	Enterprises	Saw frames	Workmen	Power used	Annual production
				Horsepower	*Standards*
Riga	62	130	4,000	6,500	100,000
Libau	12	25	900	1,000	16,400
Windau	9	24	1,000	1,000	25,000
Mitau	4	7	100	200	2,200
Other	160	200	1,200	4,000	60,000
Total	247	386	7,200	12,700	203,600

In addition, considerable transit timber, floated to Riga from Russia and Poland, is handled by local mills

The products of sawmills, which consist largely of planks and boards, comprised 76 per cent of the total timber products produced in Latvia in 1927 and were valued at 46,900,000 lats ($9,052,000) The following shows how this timber is eventually worked up

Deals, battens, boards, and ends, 165,301 standards, shipped to England, Belgium, and France

Pit props, 122,792 cubic feet, shipped to England, Belgium, France, the Netherlands, and Germany

Boxboards, 29,344 standards, shipped to England, Belgium, the Netherlands, and Denmark

Plywood, 19,325 tons, shipped to England, Germany, and the Netherlands

Timber, cap-baulks, and beams, 80,340 loads, shipped to the Netherlands, Germany, and Belgium

Pulpwood, shipped to the Netherlands, Germany, and England

Aspen blocks, shipped to Germany, England, and Switzerland

Match splints, shipped to Belgium, Germany, and England (Stopped now on account of match monopoly)

Miscellaneous, shipped to Australia and Africa

Railway ties, shipped to England, Denmark, the Netherlands, and Germany

Plasterers laths, shipped to England

Crossbeams, shipped to England

As Latvia is primarily a price market, German machinery, which is from one-half to one-third cheaper than Scandinavian or American machinery, is used For example, a saw frame can be delivered from Germany to Riga for 8,000 lats (1 lat = $0 193), whereas a Norwegian or Swedish frame would cost from two to three times as much Latvian, Swedish, Norwegian, and British machinery, in order of importance, is also used. Saw blades and other tools are mostly obtained from Germany, England, and Sweden.

The logs are fed to the sawmills on continuous chains and placed on carriages which run on tracks and are operated by hand, no automatic devices being used, except in one plant in Windau which is a recent installation.

Owing to the lack of capital and the great amount of idle sawmill machinery (there now being 100,000 standards worked annually by 57 mills, whereas before the war 300,000 standards were produced by the same number), little opportunity exists for the sale of new equipment, though this machinery is needed to reduce waste and increase speed of operation. About 20 per cent of the employees in the mills are females who receive from 1 to 2 lats a day. Common male labor receives about 4 lats a day and skilled labor about 1.20 lats an hour. While a few of the workers are unionized, the union movement is not important because of the intermittent operation of mills.

While machinery exists for hoisting the floating logs from the shore to the floor of the mill and for working through the cutters, all of the other work is done by human labor.

As wood is in abundance in Latvia and a demand for products derived from the use of sawdust packing, such waste is at present automatically picked up in several mills by means of suction tubes from the machines to the boilers and used as fuel under the steam boilers for the operation of the plant. About 10 per cent of the 33 per cent of timber not sawn into boards is used for fuel. Other than woodworking plants are also supplied by the waste. One large company in Riga has constructed a new sawmill to be equipped with five new Swedish saw frames to handle the milling of lumber for outside firms, at the rate of 51 lats per standard. It is said that this sawmill has been erected primarily to supply the fuel in the form of sawdust and waste for the flour mill, flax mill, and candle factory located on the property.

The power plant of this factory is being equipped with six 250-horsepower English boilers. The machines will be driven by electric motors.

There has been some talk about wood utilization, but as yet this movement has not made much headway. The sawmills are working their short pieces into boxboard and furniture. Some mills have made toys from waste, but already find this more expensive than using fresh material.

In Latvia lumber is cut to 6-foot lengths, ½-inch widths, and in thicknesses ½, ¾, ⅞, 1, 1½, 1¼, 2, 2½, and 3 inches. Lumber cut in metric measurements is also shipped to France, Belgium, and North Africa.

Most of the power supplied to sawmills is furnished by steam generated by the waste wood.

At one important plant, one of the five saw frames is operated by electricity produced by the plant's own power station. The box-board machinery at this plant is all worked by electricity.

The lumber is mostly sawn in the open air and very little of it is artificially dried, most of it being dried in the open air. One company has a drying kiln constructed by themselves, lumber being placed on cars and rolled to the hot rooms. Another firm also has a drying plant (15 standards per week working capacity) installed by a German firm.

There are two or three drying kilns in use, but these have a drawback in that the lumber, being full of knots, tends to split in the process of drying There is, however, a demand for good kilns in the plywood industry

Logging is usually carried on during the winter months by horse-drawn sleds, and the logs are floated to the mills along the streams, log railways being used very little The method of auctioning off parcels of timberland, the oversupply of mills, the lack of capital, etc , all work against the introduction of better transportation and manufacturing equipment

WOODWORKING INDUSTRY

The woodworking industry in Latvia, aside from the boxboard and planning mills included in the sawmills, consists of factories manufacturing, plywood, match splints, barrels, household furniture, cork and airplanes

The machinery used in this branch is primarily of Scandinavian and German origin, very little of it being brought from America Though the industry appreciates the value of up-to-date machinery, it is hindered from making any replacements through lack of capital

The principal kinds of domestic lumber used in the local plants are white pine for boards, planks, and box board, fir for box boards and parquet flooring, birch for plywood and parquet flooring, and aspen and alder for plywood Imported lumber includes oak for parquet flooring and furniture, ash for parquet flooring, and mahogany for plywood and furniture

Most of this lumber is air-dried, although one important firm has a kiln, built by itself which requires about three days for drying a 15-standard batch Another concern has a modern kiln for drying lumber used in the veneer factory

The tendency in this industry is toward a great number of small plants rather than a few large plants, as there seems to be no movement on foot for appreciation of centralized manufacture for reducing operating or distribution costs

Average daily wages paid to workers are as follows

	Lats		Lats
Machine operator	5	Log float laborer	6
Edger	9	Common labor, male	3
Edger helper	5	Common labor, female	2

The foreman is paid 240 lats a month

Much room is left for improvement, but owing to lack of capital, rotation of labor, as well as seasonal operations, high production per unit worker is difficult to obtain

Most machinery is still operated by power shafts driven by steam engines

Though price is the dominating factor in the purchase of machinery, some engineers appreciate the quality and efficiency of American machinery The imports of wood working machinery for 1928 were as follows·

WOODWORKING MACHINERY IMPORTS INTO LATVIA IN 1928

Country of origin	Kilos	Lats	Country of origin	Kilos	Lats
Germany	373,727	625,227	Estonia	9,539	7,434
Sweden	23,969	84,842	France	588	1,690
England	20,126	77,165	Finland	17	215
Switzerland	19,001	46,254	United States	436	3,477
Poland	39	150	Other countries	2,298	1,481
Denmark	260	890			
Czechoslovakia	542	981	Total	450,554	849,836
Lithuania	12	30			

The above table gives a fairly good idea of the nature of the Latvian and Baltic market. To complete the picture, it might be stated that Latvia supplied about 22 saw frames, 15 edgers, some planers, and about 50 wood-lath machines in 1928. A study of the figures indicates that the average price per kilo for machinery ranges from 3.54 to 3.80 lats, with Sweden showing the higher figure. This is explained by the fact that, while Germany's machinery consisted of a considerable amount of cast-iron frames, etc., Sweden's was of high-quality steel and less in weight. Spare parts, weighing considerable but low in price, help to reduce the price per kilo.

One large company has a special shop for keeping its saws and tools sharpened. Some automatic machinery is used. This might be considered the general practice of most large factories.

It is believed that, if agencies are placed in qualified hands, American machinery can be sold in this territory on short-term credits (three to six months) against bank guarantees.

The best market is for plywood machinery, since with the German and Scandinavian sources so well established in the market, it would be difficult to develop much of an opening for other types.

General conditions as prevailing in Latvia may be considered applicable also to Estonia and Lithuania.

[A list of Latvian sawmills, manufacturers of sawmill and woodworking machinery, and agents handling such equipment is available in the Commercial Intelligence Division of the Bureau of Foreign and Domestic Commerce, Washington.]

FINLAND

By C. Roderick Matheson, Secretary to American Commercial Attaché, Helsingfors

The Finnish sawmill industry uses pine (red wood), for the greater part, fir (white wood), and spruce. Approximately 65 per cent of the wood used is pine. The only other woods known to any great extent in Finland are birch, used in the spool and plywood industries, and aspen, used in the match industry.

Lumber is generally shipped by the Finnish sawmills as sawn timber, and only a very small part is planed. During 1927 the output of the sawmill industry in Finland aggregated 1,494,070 standards of sawn goods and 8,161,442 cubic meters of fuel and sawdust. During that year there were 608 sawmills in operation throughout Finland, employing a total of 56,915 laborers and 2,514 other employees. The total value of the 1927 production amounted to 3,490,190,000 marks. (A Finnish mark is worth approximately $0.025.) The capacity of the mills above described is estimated at around 2,000,000 standards.

The principal foreign equipment imported comes from Sweden Circular and gang saws are imported from the United States in small numbers There is a fairly steady annual import of saws and saw blades

During 1927, the latest year for which statistics are available, the imports of saws and saw blades totaled 159,943 kilos, with a value of 7,760,596 marks The United States, share in this trade during 1927 totaled 10,227 kilos, with an aggregate value of 528,577 marks The total imports during 1926 of saws and blades amounted to 117,200 kilos, valued at 5,362,645 marks Of this, 9,843 kilos, valued at 494,608 marks, originated in the United States

Finnish-made machines enjoy a good reputation in Finland, and these, together with those imported from Sweden, have practically a monopoly of the market

Carriages and feeding devices used in the Finnish sawmill industry are practically all manufactured in Finland, and those for special purposes in Sweden

SAWMILL INDUSTRY

The sawmill industry, being one of the chief industries of Finland, is maintained on the most modern possible lines The equipment used is considered very satisfactory, and all possible latest devices and machinery are installed whenever practical

In the mills proper, the logs and lumber are handled practically exclusively by machinery, by means of conveyor facilities, loading devices, etc The only place where human labor is used to any great extent is in loading barges with sawn timber of different lengths and sizes

There is a demand in Finland to reduce waste wherever possible, including waste in sawdust The saws generally used in the Finnish machines, and to some extent in the Swedish equipment, are of domestic manufacture, 14 Birmingham gage

As already mentioned, there is a demand to keep waste down to a minimum, and as labor is not very expensive, it is possible to eliminate wood waste to a greater extent than is practical in those countries where wages are high As a rule, tops are left in the woods, top logs are used as pit props On the whole, the recovery of all usable tree parts is considered very good, and waste is believed to be minimized in the sawmill industry

Steam is generally used in the Finnish sawmills to generate power, electricity is used less extensively Wood is used as fuel, the sawmills utilizing waste and wood scrap for economy's sake Electricity is produced by water power, either by the sawmill itself or by large power plants who sell electricity to mills, townships, etc , for power, lighting, and other purposes

Lumber is sold by the Finnish sawmills as planks, deals, boards, and small pieces (scantlings, firewood, etc) Very little is sold planed Planks, boards, etc , are placed in the open air to dry, for the most part, there is some kiln-drying, and this method of drying lumber is increasing, especially among the large sawmills The kilns used by these mills are partly of the Swedish type, and partly locally made.

There is only one piano works in Finland, and the wood used there is imported, as no suitable hardwood is produced in Finland

Two airplane factories operate in this country, but the wood consumption is very small, owing to the relatively small annual production of these two plants

Logs for the manufacture of lumber are usually drawn by tractor or sledges to the near-by lakes and rivers and floated to the mills Log railways are unnecessary, owing to the existence of a network of lakes and waterways throughout Finland Timber cutting is carried on during the winter, and logs are floated to the mills in the spring and summer

WOODWORKING INDUSTRY

There are hundreds of small woodworking establishments throughout Finland, but comparatively few of any great importance The official statistics published by the Finnish Central Statistical Bureau do not include a great many of the smallest woodworking establishments of the country

The following table shows the official statistics for 1927 on the woodworking industries in Finland, their equipment, employees, and production

	Number	Horsepower used	Employees	Production
				Marks[1]
Plywood mills	14	6,983	3,916	171,183,400
Box factories	13	1,490	1,317	87,794,600
Shipyards	14	104	280	1,197,900
Joineries and furniture makers	157	908	3,479	140,007,700

[1] The Finnish mark equals about $0 025

It is reported that about 30 carpenters and joiners' factories have established a company for exporting their products as well as for purchasing machinery, raw materials, and other necessities According to the articles of association, the capital amounts to 1,000,000 marks

There are no independent planing mills in Finland Some planing is done at the sawmills The entire 1927 production of planed lumber totaled 48,405 standards, of which approximately 80 per cent was pine In addition to this figure, 7,143 standards of planed boards were produced by the box factories of the country

Sashes, doors, and indoor finish are included in the total output of the joiners, furniture makers, and box factories

There is only one airplane factory in Finland. This is the state-owned factory at Sveaborg Its production is chiefly for military use, and figures are not published, therefore, as to the output of this factory

The majority of the woodworking establishments in Finland are equipped with a lathe, a saw, and a planer each A number have other machinery as well, but for the most part old models The medium-sized factories frequently possess fairly good machinery, and in some of the largest establishments of the country the machinery and equipment is thoroughly up to date

Electric power is not available to all of the woodworking establishments of the country, however, where it can be used economically, practically every such factory is operated electrically The tendency is to electrify each machine individually, either direct or alternating current of 50 cycles being used

Operators of woodworking establishments in this country are, generally speaking, interested in the improvement of their factories, but the greater number of these factory owners are without adequate capital to make consistent or large improvements in types and models of their equipment

The use of hardwoods in the local industry is comparatively small, pine, spruce, and birch being the easiest obtainable and most available kinds of wood The imports of unworked hardwood in 1928 included 2,625,314 kilos of oak, from Germany, Poland, and Danzig, and 394,367 kilos of other kinds, from Germany, Danzig, Great Britain, the United States, and other countries Sawn hardwood lumber of a minimum thickness of 7 millimeters was imported to a total of 3,566,738 kilos into Finland during the same year These included the following

IMPORTS OF SAWN HARDWOOD LUMBER INTO FINLAND IN 1928

[In kilos]

Country of origin	Red beech	Oak	Walnut	Other
Russia	9,898			2,440
Sweden		14,821		63,404
Denmark	705	1,400		3,350
Germany	142,184	988,940	13,673	253,302
Great Britain				3,480
France	1,327			2,370
Switzerland	15			
Poland	5,322	712,433		16,499
Danzig	26,722	1,087,068		175,104
United States		26,444	6,400	9,437
Total	186,173	2,831,106	20,073	529,386

Sheets of red beech totaling 4,100 kilos were imported from Denmark during 1928

Oak is used in Finland in the building industry for hardwood floors and window casings, as well as for the manufacture of furniture Red beech is chiefly used in the manufacture of vehicles, automobile bodies, and, to a smaller extent, wringers and other specialties Walnut is imported in very small quantities, its principal use in this market being for the manufacture of furniture, for which the demand is believed to be on the decline The item "Other" of hardwood imports listed in the official Finnish foreign trade statistics is made up mainly of mahogany, which is used in the furniture and shipbuilding industries

Pine, spruce, and beech comprise the great bulk of woods used in the local woodworking industry

In the majority of cases, wood for the woodworking establishments of the country is stacked, unseasoned, in the factory yards and left there for seasoning, kiln drying is not generally practiced Cheap grades of furniture and woodwork are produced from wood which has not been thoroughly dried, and factory prices are roughly gaged by the degree of seasoning of the wood in the manufactured products On the whole, the better-manufactured articles are of very good quality and workmanship

There are few very large woodworking factories in Finland in comparison with other European countries.

So far little tendency has been shown among the woodworking plants of the country toward cooperation, either in the form of mergers, cooperative societies, or purchase by one mill of others It is believed that if the company already referred to, organized by carpenters and joiners for exporting their products and purchasing their supplies, proves successful, other establishments in the industry will follow suit in the next few years

The wages of skilled cabinetmakers, finishers, machinists, and mechanics ranges from 6 to 10 marks per hour, depending upon the factory and the district Ordinary laborers receive lower wages

The efficiency of workers in this trade depends largely upon the size of the factory Division of labor in the small establishments is impracticable, and individual efficiency suffers accordingly In the larger factories, the individual efficiency of the workmen is said to be very satisfactory

Around 75 per cent of the woodworking machinery used in Finland is of Swedish origin, two makes, especially, being found in most of the furniture and cabinetmaking plants in the country

Wood waste is relatively high in the Finnish woodworking industry The price of wood, however, is so low that the question of waste does not offer any serious problem to the factories engaged in this activity

Price is the most important consideration in selling woodworking machines in this market The average factory proprietor conducts his business on a small scale and has not the means to purchase expensive equipment for his establishment This fact is borne out by the attached tables of Finnish imports of woodworking machinery, which show that a relatively large number of cheap German machines find a ready market here

One factory in Finland manufactures woodworking machinery. While this company shipped to Russia and Sweden machinery aggregating 2,508 kilos, valued at 57,875 marks in 1927 and 2,137 kilos, valued at 69,290 marks in 1928, its total production does not nearly meet the requirements of the local market, and Finland is dependent upon imports for this type of equipment Sweden and Germany enjoy an advantage over exporters of other countries, owing to the relatively low prices of their machinery, their nearness to the market, their consequent ability to deliver goods quickly, and their close familiarity with the requirements of the Finnish industry These advantages are further enhanced by the willingness of Swedish and German exporters to extend credit and accept long-term payments

The heavier types of American machinery and special equipment for the woodworking industry enjoy a relatively good demand in this market, as evidenced by the official foreign trade figures published by the Statistical Bureau of the Finnish Government, and the prospects for the gradual expansion and growth in this industry will, it is believed in the local trade, tend to open a larger field for those types of American woodworking machinery which are now purchased from the United States, as these are well known among the larger factories of the industry

Imports of Woodworking Machinery into Finland in 1928

Item and country of origin	Amount in kilos	Value in marks
SAWS		
Under 500 kilos		
Sweden	33, 133	617, 527
Norway	1, 395	30, 000
Denmark	8, 552	170, 900
Germany	10, 440	246, 686
Czechoslovakia	13	500
United States	10	420
Total, 1928	53, 543	1, 066, 033
1927	59, 975	1, 323, 812
1926	47, 753	897, 656
Over 500 kilos		
Sweden	211, 934	3, 229, 803
Norway	16, 717	277, 500
Germany	20, 560	325, 200
Great Britain	1, 422	43, 000
United States	750	11, 700
Total, 1928	251, 383	3, 887, 203
1927	187, 674	2 932, 684
1926	193, 248	2, 993, 006
MILLING CUTTERS		
Under 500 kilos		
Sweden	11, 758	193, 800
Germany	3, 617	49, 760
United States	426	22, 651
Total, 1928	15, 801	266, 211
1927	12, 336	243, 119
1926	10, 695	191 804
Over 500 kilos		
Sweden	1, 144	18, 100
Germany	2, 201	38, 050
United States	12, 790	312, 000
Total, 1928	16, 135	368, 150
1927	4, 813	133, 920
1926	26, 024	505, 635
PLANING MACHINES		
Under 500 kilos		
Sweden	18, 443	298, 495
Denmark	2, 251	57, 600
Germany	16, 959	255, 200
Total, 1928	37, 653	611, 295
1927	20, 992	405, 094
1926	16, 424	308, 342
Over 500 kilos		
Sweden	125, 363	2, 235, 139
Norway	2, 390	50, 000
Germany	41, 176	566, 667
United States	3, 805	160, 000
Total, 1928	172, 734	3, 011, 806
1927	201, 086	3, 036, 718
1926	119, 531	1, 967, 685
OTHER MACHINES		
Under 500 kilos		
Estonia	422	12, 000
Sweden	39, 586	724, 801
Denmark	13, 460	318, 114
Germany	16, 911	381, 538
Belgium	2, 524	116, 800
Great Britain	290	8, 685
United States	2, 072	151, 500
Total, 1928	75, 265	1, 713, 438
1927	47, 381	960, 511
1926	29, 601	586, 040
Over 500 kilos		
Estonia	434	4, 000
Sweden	104, 101	1, 749, 978
Denmark	1, 500	39, 750
Germany	203, 103	2, 332, 274
Belgium	2, 955	31, 200
Great Britain	602	17, 660
United States	79, 178	1, 588, 371
Total, 1928	391, 873	5, 763, 233
1927	177, 859	3, 052, 562
1926	221, 421	3, 796, 724

[A list of sawmills in Finland is available in the Commercial Intelligence Division of the Bureau of Foreign and Domestic Commerce, Washington]

U. S. DEPARTMENT OF COMMERCE
R. P. LAMONT, Secretary

BUREAU OF FOREIGN AND DOMESTIC COMMERCE
WILLIAM L. COOPER, Director

SALVADOR
AS A MARKET FOR FOODSTUFFS

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FOREWORD

Salvador spends annually nearly $2,500,000 for imported foodstuffs, about 72 per cent of which is expended in the United States Most of these food products are shipped from our Pacific coast ports, but the opening of rail communication with the Caribbean through the Guatemalan port of Puerto Barrios is expected to alter the situation American exporters who ship through Atlantic and Gulf ports now have a better opportunity to enter the Salvadorean market than at any time in the past European shippers will also be able to take advantage of this shorter haul, however, and the indications are that competition will become keener than ever

Flour, lard, hams, canned meats, canned fruits and vegetables, sardines, fresh and dried fruit, fresh and dried vegetables, crackers, canned milk, butter, and cheese are among the more important items shipped from the United States to Salvador

Though economic conditions in Salvador are at present unsatisfactory as a result of the current weakness in the price of coffee, the commodity which accounts for over 90 per cent of the country's exports, this is a good time for firms contemplating future extension of distribution to Central America to survey the market, estimate the potential demand for their products, and arrange for sales representation

This bulletin contains considerable general market information on Salvador which should be of interest to exporters in general, although the greater part of the report is devoted to the market for specific foodstuffs It is the third bulletin in the series being prepared by Trade Commissioner H P Macgowan and follows those on the foodstuffs markets of Colombia and Guatemala A fourth on Honduras is in course of preparation Additional bulletins will be published until all the Caribbean markets have been treated

Trade Commissioner Macgowan wishes to thank Algar E Carleton, American consul at San Salvador, for many helpful suggestions and for generously placing at his disposal the facilities of his office

Further data on the market will be furnished on request by the foodstuffs division of the Bureau of Foreign and Domestic Commerce

William L Cooper, *Director*,
Bureau of Foreign and Domestic Commerce

May, 1930

SALVADOR AS A MARKET FOR FOODSTUFFS

By H P Macgowan, American Trade Commissioner

Salvador is a market with which American exporters are not sufficiently acquainted, and particularly to our foreign traders of the Eastern and Middle Western States is this little country an unplowed field This is not surprising, since the market is but a small one and is more accessible from our Pacific coast ports, as it has no Caribbean coast line

The Republic imports annually from overseas about 20,000 metric tons of foodstuffs, expending for these purchases approximately $2,335,000 Besides the imports in which we have a definite competitive interest, there are annual arrivals of close to 1,000 metric tons of wines, spirits, beer, and miscellaneous alcoholic beverages valued at about $365,000 These figures and those in ensuing paragraphs are based on the official trade figures of Salvador for 1928

About 12 5 per cent of Salvador's expenditures for imported merchandise went, in 1928, for the purchase of foodstuffs, and approximately 72 per cent of the funds expended for imported foodstuffs were spent in the United States When it is remembered that our share in the total import trade of the country is 53 per cent (by value), it is evident that our position in the foodstuffs trade is decidedly stronger than our position in the import market as a whole

The recent establishment of rail communication between the principal cities of Salvador, including the capital, San Salvador, and Guatemala's Caribbean seaport, Puerto Barrios has altered the transportation situation, and given impetus to the movement of American goods from Atlantic and Gulf ports into Salvador via this new combination rail and water route Exporters located in areas adjacent to such ports are therefore appreciably nearer this Pacific market than at any time in the past

Although Salvador is a limited market for imported merchandise, it is attractive because of its record for economic, financial, and political stability, and because of the progressive spirit of the business community European nations, several favored by preferential tariff schedules, are trying hard to increase their share of the trade at our expense, and it is quite probable that they will take full advantage of this new route, thereby eliminating the necessity of shipping through the Panama Canal and up the west coast, and improving their position for competing with the American Pacific coast firms which have been doing such a large share of the foodstuffs business

GEOGRAPHY

Salvador is the smallest of the Central American Republics, and the only one without an Atlantic seacoast It lies between Guatemala, to the northwest, Honduras on the north and east, the Gulf of

Fonseca to the southeast, and the Pacific Ocean on the north The area is 34,126 square kilometers, or about 13,173 square miles, approximately the same as Maryland

It is a mountainous country, traversed by two principal chains, from which numerous spurs branch out in all directions There is a narrow strip of coastal plain with tropical climate, and many small but fertile valleys are situated among the hills The most important river is the Lempa, and its valley is particularly well adapted to agriculture In the higher valleys the climate is semitropical and agreeable, and in the hills even more temperate weather is encountered

POPULATION

Official estimates placed the population of Salvador at 1,722,579, as of December 31, 1928, or about 50 5 per square kilometer This equals a population density of 130 per square mile and makes Salvador the most densely populated Central American Republic

It is estimated that about 60 per cent of the population is rural and 40 per cent urban Illiteracy is high, but is gradually being reduced In 1928 about 67 per cent of the population was considered illiterate, as against approximately 68 per cent in 1927

The estimated population of the chief cities, as of December 31, 1928, is given in the following statement

Santa Ana	75, 796
Chalchuapa	31, 061
Ahuachapan	31, 741
Sonsonate	16, 895
Santa Tecla (also called Nueva San Salvador)	29, 499
San Salvador	89, 066
Zacatecoluca	34, 456
San Vicente	34, 723
Sensuntepeque	22, 905
Ilobasco	21, 300
San Miguel	38, 620
La Union (port)	7, 543
La Libertad (port)	2, 845
Acajutla (port)	1, 149

For the benefit of firms which plan intensive market coverage, the following table shows official population estimates by Departments.

POPULATION BY DEPARTMENTS

[Official estimates as of December 31, 1928]

Department	Area	Population	Density
	Square kilometers		
Santa Ana	3, 559	184, 704	51 9
Ahuachapan	2, 082	105, 326	50 5
Sonsonate	2, 242	116, 758	52 1
La Libertad	2, 184	126, 695	58
San Salvador	2, 047	193, 836	94 7
Chalatenango	3 346	113, 686	34
Cuscatlan	1, 740	108, 180	62 2
La Paz	2 354	118, 326	50 3
San Vicente	2, 287	98, 310	43
Cabanas	819	71, 137	86 8
San Miguel	3, 481	146, 690	42 1
Usulutan	3, 344	147, 057	44
Morazan	2, 355	100, 383	42 6
La Union	2, 286	91, 491	40
Total	34, 126	1, 722, 579	50 5

COMMUNICATIONS

Salvador has no Atlantic coast line, but it enjoys direct steamship connections with New York, San Francisco, and Los Angeles, besides occasional services with other American ports. Direct steamship communication with Europe is also available

The direct services from the United States east coast and from Europe operate via the Panama Canal United States shippers can also ship to the Canal Zone by several other lines and, after transshipment there, to Salvador by one of the lines operating coastwise services along the Pacific coast of Central America

Merchandise enters Salvador through three ports, that is, merchandise imported by water In 1928, 16,000 metric tons came through La Libertad, 34,000 tons through Acajutla, and 66,000 tons through La Union Shipments of local products to foreign countries moved as follows 22,000 metric tons through Acajutla, 7,000 tons through La Libertad, and 24,000 tons through La Union

La Union and Acajutla are linked by rail with the capital, San Salvador, and with most of the important distributing centers Usually the shipper chooses the port of entry nearest the town in which his customer is located, so as to incur a minimum railway freight expense La Libertad is connected with San Salvador by an excellent automobile road, over which trucking and passenger automobile service operate Travelers headed for the capital usually enter through La Libertad because of the short automobile trip required—about one and one-half hours—as compared with an all-day train trip from La Union, and a half-day trip from Acajutla Some travelers are now making use of the airplane service from Guatemala, sending their baggage by the auto-rail route just described From Guatemala City the traveler can continue to Mexico and the United States by air if he so desires.

An important development in the transportation situation is the recent completion of the railway connecting Santa Ana with Zacapa in Guatemala, and through Zacapa with Guatemala City and Puerto Barrios, Atlantic port of Guatemala Work trains traversed the new track late in 1929, but not until early in 1930 was this link opened to general traffic There is much speculation as to what effect this new artery will have on the routing of imports from Europe, New York, and New Orleans Presumably some of the midwestern products now coming via the Pacific coast and some of the eastern shipments now coming through the canal will take advantage of this new route Shippers should watch for the announcement of freight rates to Salvador points via Puerto Barrios, and check them with those being paid on shipments via the old routes

The highways of Salvador are better than those found in other Central American countries, and in the dry season many interior towns can be reached from towns on the rail arteries by motor car In the rainy season several of the larger towns can be reached, but less comfortably Travelers should invariably attempt to secure accurate information regarding condition of roads and hotel accommodations before setting out on an auto trip Chauffeurs anxious to rent their cars are frequently over optimistic and not adverse to misleading the credulous traveler

The International Railways of Central America, which connect San Salvador with the port of La Union, and now with Guatemala City and Puerto Barrios, in 1928 operated 441 kilometers of line Figures for 1929 construction are not yet available, but will probably bring the total to about 500 kilometers In 1928 this railway carried 1,041,565 passengers and 163,773 tons of freight

The Salvador Railway, which connects San Salvador with the port of Acajutla, had in 1928, 145 kilometers of track in operation, and carried 703,540 passengers and 146,214 tons of freight

During the year 1928, 699 ships called at Salvadorean ports, total tonnage of these entrances was 1,513,250 tons

The national telegraph system operated 256 stations and 4,022 kilometers of wire in 1928, and the national telephone system operated 256 centrals, 3,703 instruments, and 4,613 kilometers of wire in that year (1 kilometer equals 0 62 mile) An American cable company operates a cable service to all parts of the world

Airplane services connect San Salvador with Guatemala, Mexico, the United States, and Panama

FOREIGN TRADE

Exports from Salvador in 1928 reached a total value of $24,464,000, a considerable gain over 1927 but approximately equal to those of 1926 In 1928 coffee accounted for 92.96 per cent (by value) of the country's exports Sugar, henequen and Peruvian balsam are the only other exports of importance, and they were shipped in limited quantities Exports of cotton have fallen off considerably

About 30 per cent of the exports went to Germany, the heaviest buyer of coffee; the United States was second in importance as a customer for Salvador's exports taking about half as much as Germany.

Imports in 1928 were valued at $18,652,000, considerably more than in 1927, much less than in 1926, and almost equal to the imports of 1925 Imports covered a wide variety of merchandise, but foodstuffs and cotton textiles were the most important. Merchandise valued at $9,916,940, approximately 53 per cent of the imports, came from the United States The United Kingdom ranked second, with about 13 per cent for its share, and Germany was fourth, with close to 10 per cent

ECONOMIC CONDITIONS

The economic structure of Salvador is not complex, it is a "1-crop" country, with coffee playing the major rôle Nearly 93 per cent of the republic's exports consists of coffee, and economic conditions fluctuate with coffee production and prices

During the 5-year period 1924–1928 coffee prices were decidedly good, and not until October, 1929, did a serious drop occur During these years of satisfactory prices coffee production gradually increased, and the country prospered The money which flowed into the country as the proceeds of coffee sales abroad increased per capita purchasing power and indirectly the demand for imported merchandise

The slump in coffee prices which occurred in the fall of 1929 was seriously felt early in 1930, though conservative merchants had begun to reduce their oversea orders during the closing months of 1929 Fortunately the 1929–30 coffee crop was a large one, slightly larger than the preceding crop, but even so, planters are realizing considerably less for it than they did on the crop of the previous year

By March, 1930, a definite business depression was apparent, and banks reported a marked slowing up of collections Many merchants were overstocked and were experiencing difficulty in moving old stocks from their shelves, and in realizing funds for taking up drafts covering recently arrived merchandise Numerous firms of limited resources and doubtful reliability refused to accept goods on one pretext or another, and considerable quantities of merchandise had to be returned to the shippers

Probably the situation will gradually right itself during 1930, and business will be reorganized on a new, sound, but reduced scale It is hoped that orders are limited to necessities, and that imports are reduced to a point where they can be financed by the lower exports Foodstuffs business is not suffering as much as that in other lines, and luxuries are the hardest hit by the depression. Staples are least affected by the decline in purchasing power

American exporters should not attempt to oversell the market, and should preferably confine their sales to the reliable firms of proven financial ability and conservative methods Frequent small orders involve less risk than occasional large purchases and should be encouraged Credit risks should be checked and agents should be warned to forward reports on new customers

Exporters investigating the market with the idea of entering for the first time must bear in mind that business conditions are at present unfavorable For the present, only limited sales can be expected However, now is an excellent time for studying the market, appointing agents, and planning advertising and sales campaigns

TARIFF REGULATIONS

The import tariff of Salvador provides a schedule of rather high duties, most of which are specific duties charged on gross weight Rates on canned goods and groceries are particularly high, but those on staples range somewhat lower Undoubtedly, the tendency to charge high rates on certain food products has limited the import and consumption of these items because of the consequent increase in their cost to the ultimate consumer

Salvador has a preferential tariff agreement with France by which certain French products are admitted at reduced import duties in return for tariff concessions in France on certain Salvadorean products, notably coffee By most-favored-nation agreements between Salvador and Germany, Belgium, Italy, Switzerland, and Spain the benefits of this treaty with France are extended to the products of those countries when imported into Salvador

In the items affected by these agreements American exporters have experienced keen competition, and in many cases have found it impossible to compete with the favored European products

The agreements with the European countries mentioned above have been denounced, but according to best reports at present available, their termination has been postponed to the middle of 1930 These extensions were granted to permit time for preparing, submitting, and possibly negotiating new agreements, and already negotiations with France in connection with a new commercial treaty are under way The idea is for this to serve as a basis for negotiations with the other five countries and with such others as may subsequently negotiate commercial treaties with Salvador

The United States has negotiated a most-favored-nation treaty with Salvador, and when ratifications are exchanged, our goods will receive equal tariff treatment with any and all other countries except those of Central America, thus removing the advantage held at present by the six European countries listed It is thought that any new preferential duties agreed upon by Salvador will be based on a percentage preference, rather than on a specific difference in rates This will permit the movement of preferential duties in accordance with any increases or decreases in the general tariff schedule

In addition to the tariff preferences by treaty with France and other European countries previously mentioned, Salvador by reciprocal agreement accords duty-free treatment to Honduras on an extensive list of commodities and special concessions to other Central American Republics A similar agreement with Guatemala is in process of negotiation

It will be noted in later sections of this report that this preferred tariff treatment has aided Salvador's neighbors to develop in it an export market for some of their products, notably lard, cheese, butter, beans, vegetables, fruit, fish, and tobacco

In the following table is shown a list of the commodities on which the six European nations now receive preferential tariff treatment

SALVADOR'S PREFERENTIAL DUTIES

[Rates are in United States currency per kilo, gross weight]

Commodity	General rate	Preferential rate
Sardines	$0 3500	$0 2481
Mineral water	1040	0801
Olives	5140	2929
Pickles	5140	2929
Prepared mustard	5140	2929
Currie	5140	2929
Sauces	5140	2929
Vegetables, butter, fish, meats, prepared in tins, glass, crocks, or other packages	5140	2929
Dried fruits, figs, dates, prunes raisins	3500	2481
Fruits preserved in alcohol or syrup	5140	2929
Crackers and biscuits	3500	2481
Cheese	5140	2929
Sugar	3500	2481
Candy, confectionery, chocolate, and other kinds made with sugar	5140	2929

EXPORTING FOODSTUFFS TO SALVADOR

Most of the American food products entering Salvador are sold by the manufacturers, canners, or millers through agents in Salvador, but wholesale grocers still supply considerable quantities of miscellaneous groceries Export commission houses formerly did a large part of this business, but in recent years there has been a decided change in distribution channels, and an ever-increasing share of the business is going direct to original sources

Of course, the American wholesale grocers are operating to some extent as commission houses Most of them do a certain amount of packing, canning, and manufacturing themselves, and when they handle items not prepared by themselves, either contract for the output of canneries, mills, etc , and have the products put up under their private brands, or obtain the export rights to certain territories on specific standard brands, or simply wholesale the products prepared by others

Staples, which are in considerable demand now, move almost entirely from manufacturers The principal export meat packers sell through agents in Salvador, as do most of the larger flour mills, canners of fruits, vegetables, fish, milk, and meats, and cracker manufacturers The wholesale grocers usually push their own brands of canned goods, bottled specialties, sauces, etc , and also take orders for various less important grocery specialties, under their own or other brands

Until recently Salvador has had no outlet to the Caribbean, and as a result of geographical location has been a logical market for exporters on our Pacific coast Most of the food products purchased in the United States have moved south from San Francisco, and to a lesser extent from other Pacific coast ports This was true when export commission houses did the bulk of the business and it is still true with imports being sold direct The new railway connection with Puerto Barrios on the Caribbean coast of Guatemala may, however, alter this situation somewhat

When the commission houses were doing most of the business, they utilized the services of their own traveling salesmen and also operated through local agents in Salvador, manufacturers are now doing the same thing Both have employed branch houses when the volume of business has warranted the overhead required to maintain their own establishments Frequently manufacturers appoint the branches of export commission houses to act as local agents, but then the commission house branch functions rather as a local agent than as an export commission house

The bulk of American foodstuffs are sold through agents in San Salvador A few lines are sold by agents located in neighboring countries who visit Salvador periodically As a general rule, it is better to have a man who is always on the ground, especially if difficulties arise in connection with refusal of merchandise and nonpayment of drafts

However, a good agent in Guatemala City or other Central American country is preferable to a poor agent on the ground, and good agents are not easy to find Appointing agents by correspondence is always difficult and often hazardous, but sometimes it is possible to choose a good man in this way It is a good idea to check carefully the applications of would-be agents, communicating with all other firms represented by them, as well as banks and credit-reporting agencies, before reaching a decision Frequently a commission agent can operate successfully on limited capital, but, of course, some financial responsibility is desirable Distributors who buy outright and carry stocks should have sufficient capital to finance their operations Agents should have reputations for honest dealing and energetic salesmanship

SALVADOREAN IMPORTERS

There are about 10 large wholesale and retail grocers in San Salvador and 2 or 3 in each of the larger secondary towns Most American foodstuffs firms prefer to do business with these firms, and let them sell the smaller retailers In other words, 20 good accounts in the country are about as many as the average exporter can expect Limiting sales to the larger, more reliable buyers reduces the credit risk and minimizes losses The local wholesaler knows his customers and is in a much better position to secure payment

These combination wholesale-retail firms also act as exclusive distributors for grocery specialties, particularly malted-milk product, wines, spirits, etc , and stock them. but this usually prevents other similar firms from buying, and limits sales to retail and consumer clients of the distributor

COVERING THE MARKET

Representatives of American firms confine their efforts largely to San Salvador, but salesmen wishing to cover the market intensively spend a day or two in each of the secondary towns European salesmen are more apt to visit the smaller towns Much depends on the lines handled, and particularly in such lines as dry goods, glassware, china, kitchenware, hardware, and novelties are the lesser centers worth covering

It is doubtful if the foodstuffs salesman could accomplish much in these smaller towns Usually the local agent is able to do this work, and it often pays him because he probably sells flour, lard, canned fruits, vegetables, fish, and miscellaneous food products, whereas the traveler is usually confined to a limited line In introducing a new product, some foodstuffs men have found it advisable to cover the smaller towns in company with the agent or one of his men

No definite rule can be laid down for canvassing the country, but the traveler can usually decide for himself the policy he should pursue after talking the matter over with his agent in San Salvador and securing the opinions of local bankers and merchants It is advisable to consult the American consul in San Salvador, since he will be able to summarize for the traveler the experiences of the numerous salesmen who have preceded him

MARKET FOR SPECIFIC COMMODITIES

FLOUR

Wheat flour is the most important single item on the list of American exports of foodstuffs to Salvador In 1928 the Republic imported 12.528 638 kilos of wheat flour, and all but about 20,000 kilos came from the United States The small balance was brought in from Canada Total flour imports were valued at 2,130,076 colons or about $1,065,000

Almost all the American flour was shipped by Pacific coast mills, and the great majority was soft-wheat flour Some hard winter wheat flour enters the country, but this goes largely to the principal bakers, who frequently use it to mix with soft flour The purchase of hard spring wheat flour is very limited, and its use is largely confined to the homes of the upper class and foreigners

Imported flour is usually ordered in 49-pound drill bags, gross weight, packed three to the large new jute oversack This jute bag weighs about 2¼ pounds and is used for exporting Salvadoran coffee Used bags are not allowed to enter the country A certificate of purity is required

Two other packings are sometimes requested, six 24½-pound drill bags, gross weight, to the jute oversack, or twelve 12¼-pound bags to the jute oversack, American mills should be very careful to follow packing instructions and to note whether gross or net weights are specified

Flour millers in the middle west may be able to ship into Salvador via New Orleans, or other Gulf port, and Puerto Barrios, Guatemala, now that the rail connection with Salvador is completed At the present, three large Pacific coast mills are getting the bulk of the business. Canadian mills are represented in the country, but thus far their agents have not been able to seriously interfere with American sales However, it is hardly probable that our competitors in the north will desist from their efforts to increase their business They have in their favor a growing tendency to use more hard wheat flour

The consumption of wheat flour is slowly increasing, but corn meal, made from domestic corn is still the staple diet for the greater part of the population Wheat bread is, however, growing in popularity, and its use will probably continue to increase as purchasing power develops

About 42,000 kilos of other flours were imported in 1928, and under this head are included oat meal corn meal, and flours made from miscellaneous cereals In addition, there was imported during 1928, 302,325 kilos of malt, of which 97 per cent came from the United States, and the balance from Germany Most of this was bought by the breweries

WHEAT

In 1928 Salvador imported but 492 kilos of wheat and since there is no flour milling industry in the country this must have been purchased for seed or experimental use

RICE

The consumption of rice in Salvador is limited Small quantities are grown locally, and production could well be increased Imports are very light, and in 1928 only about 1,000 pounds was brought in "Siam Garden No 1" is a favorite, and ' Siam Usual" and "Saigon Long" sell to some extent These oriental rices are imported via the United States, almost no American rice is sold in the market Imported rice usually comes in 100-pound double jute bags, gross weight, but sometimes in 48-pound mat packages, gross weight

OATS AND BARLEY

In 1928 imports of oats amounted to 1,156 kilos and imports of barley to 1,156 kilos Except for a few small sample shipments, these commodities came entirely from the United States

CORN

Corn is the principal item in the diet of the great majority of Salvadoreans, and it is the most important crop produced for domestic consumption Often domestic production does not suffice, and additional supplies are imported from the United States and Nicaragua

Domestic supplies were insufficient in 1928 and 5,021 228 kilos were imported About 90 per cent came from the United States, 9 per cent from Nicaragua, and the balance from Costa Rica A few small trial shipments have arrived from Chile

Corn is usually imported in 200-pound jute coffee bags, gross weight the bags weighing about 2¼ pounds each

The Salvadorean Government is doing everything it can to encourage increased domestic production, and it is not unlikely that within the next few years Salvador will be self-supporting in so far as corn is concerned The American corn is from middle-western States, and it is shipped by rail to Pacific coast ports, and exported from them

CRACKERS AND BISCUITS

Salvador's cracker and biscuit imports are not large, but no accurate estimate of this business is possible since these commodities are not listed separately in the official trade statistics Our own figures show that in 1928, we exported only 4,000 pounds of crackers and biscuits to the Republic Three-quarters of these were "sweetened" and the remaining quarter "unsweetened"

Competition from British and other European bakers is very keen, and we are getting but a small share of the cracker business

The European bakers sell considerable quantities of expensive biscuits of the rich sweetened type. Several well-known English brands are the best sellers, but one Irish and one Scotch brand move well French, German, Belgium, and Swiss biscuits are seen on merchants shelves and are, probably, more popular in Salvador than elsewhere in Central America because of the tariff preference which they enjoy American and British crackers pay the full duty of 35 cents per kilo, gross weight, whereas, crackers and biscuits from France, Germany, Belgium, Italy, and Spain pay the preferential rate of 29 cents per kilo, gross weight

The British brands have been established in the market, as elsewhere in Latin America, for many years, and are well liked by the small class of consumers which can afford them Assortments sell well, and ½, 1, and 2 pound tins, net weight, hermetically sealed are most popular. The 1-pound tin moves best

The American crackers which are in best demand are "sodas" in the "unsweetened" class and cream-filled wafers in the "sweetened" class Sodas are sold largely in hermetically sealed tins holding from 2 to 5 pounds of crackers, and in air-tight frictiontop tins of from 2 to 4 pounds, net weight The 2¼-pound and 3¼-pound, net weight, sizes are frequently seen The glassine envelope packets holding 3, 4, or 5 sodas are gaining in favor Usually 54, 72, or 100 envelopes are packed to the tin The cream-filled wafers come in tin-foil packets, packed 96 or 100 to the tin

Small quantities of inferior quality biscuits and crackers are made locally These undersell imported crackers and, therefore, find some demand among the poorer classes, chiefly in the capital

No great or sudden growth in the demand for imported crackers can be expected, but a gradual increase in annual purchases appears probable As per capita purchasing power grows, the market for imported groceries will develop In the meantime American cracker bakers should be able by increased sales effort to wrest from their European competitors a larger share of current orders If, as is more than likely, the United States is able to secure "most favored nation" tariff treatment, our competitive position will be greatly improved

It would seem also that American cracker makers could advantageously add to their line several British types of "sweetened" biscuits

CANNED GOODS

Salvador presents but a limited market for canned goods Low per capita purchasing power, high cost to consumer, and competition from local products are the principal limiting factors

Canned goods are expensive because of heavy rail and ocean freight charges high import duties based on gross weight, and a tendency of merchants to expect a rather high margin of profit Freight rates may decline somewhat with the opening to traffic of the Puerto Barrios route, but no reduction in import duties is at present under discussion, and none seems likely for the present, at least Merchants do not appear interested in reducing their margin of profit, complaining that with such a small turnover they can not operate on less

It must be remembered that the average daily wage of the laborer is less than $1, and that a can of soup, such as sells in the United States at from 10 to 12 cents, costs 55 cents retail in San Salvador. A can of peas, such as we buy for about 35 cents, brings $1 in Salvador's capital Obviously only the well-to-do class can afford such luxuries as canned fruit and vegetables

The market for American canned goods is further complicated by the preferential tariff treatment accorded competing lines from six European countries These preferences are discussed under a separate heading in this report

Fresh fruits and vegetables grown in the country also compete in a sense with our canned goods Quantities of cheap tropical fruits and vegetables are available for the poorer classes, and small quantities of temperate-climate vegetables are grown for the wealthier consumers

The cans used are standard in almost all instances, as is the number packed to the case Cases should be bound with metal tape or wire, and should be as light as is consistent with strength since import duties are charged on gross weight For this last reason, sawdust is rarely used to fill in between the cans Practically no fruits or vegetables are imported in bottles, but when they are ordered, a kind of carton interior packing, such as is often used for eggs, is preferred because it weighs so much less than sawdust However, shippers must be guided by the instructions of customers and by their experience in exporting their own particular packages to similar markets

Canned fruit—Local import figures do not classify canned fruit separately, but United States statistics on exports to Salvador give a rough idea of the volume of the trade, and a good gage of the preferences for various kinds of fruit In 1928 we sold Salvador 42 554 pounds of canned fruit, and from this it would appear that probably the entire purchases for the year did not exceed 50,000 pounds

Generally speaking the preferences follow two lines, consumers buy canned fruit of varieties not produced to any extent locally, and they buy fruit which appeals from the point of view of price The following statement shows United States exports of canned fruit to Salvador in 1928

	Pounds
Peaches	7 199
Prunes	6,136
Pears	4,635
Cherries	2,707
Apricots	2,481
Berries	2,274
Apples and sauce	347
Pineapples	90
All other	16,685
Total	42,554

NOTE—Under the heading "All other" are included considerable quantities of canned grapes and particularly grapes of the muscat type Other important items in this total are fruit salad and fruit cocktail

Canned goods, including fruit, from the United States pay the general import duty of $51 40 per hundred kilos, whereas this merchandise when it comes from the preference countries, France, Italy, Switzerland, Belgium, Germany, and Spain pays but $29 29 per hundred kilos Duties are on gross weight.

However, European competition in canned fruit is not very severe. France is probably the heaviest European shipper, and small quantities come in from the other preference countries and England Recently, French, German, Swiss, and English canned goods have been noticed on merchant's shelves Practically all the American canned fruit comes from our Pacific coast

No 2½ cans have the largest sale, but berries usually come in No 2 cans Some No 1 cans are seen, and more recently some picnic size cans have appeared in the stores These small tins seem to be gaining in popularity, and especially fruit salad and fruit cocktail are selling in this pack, 8 ounces net contents The No 2½ cans come 24 to the case, the No 1, 48, and the picnics, 72

Canned vegetables—The demand for canned vegetables is slightly lighter than that for canned fruit, but local statistics do not afford any means of measuring the market accurately In 1928 we shipped 29,234 pounds of canned vegetables to Salvador, and with this as a guide the total demand is probably between 35,000 and 45,000 pounds

Many types of vegetables are grown locally and the demand for canned vegetables represents an effort to secure types not produced in the country or, at least, in very limited quantities Asparagus and peas are the heaviest sellers, and almost all of the asparagus is American France competes actively in peas The following statement shows the exports of canned vegetables from the United States to Salvador in 1928

	Pounds
Asparagus	21, 113
Peas	5, 389
Beans	929
Corn	627
Soups	361
Tomatoes	44
All other	771
Total	29, 234

The tariff preference situation is the same as in the case of canned fruit French competition is keen, particularly in peas, and small quantities come in from the other preference countries and England

Nos 1 and 2 cans are most popular, with the former leading Asparagus tips are in better demand than the full stalks, and the No 1 square can is most in evidence in the stores No 1 cans come 48 to the case, and No 2 cans, 24

Locally grown vegetables are available and cheap, though the natives do not consume large quantities, except of root vegetables, including various types of potatoes and yams, and imported canned goods are beyond the reach of all but the small wealthy consuming class Rice, beans, corn, and flour paste products take the place of green vegetables to a large extent in the diet of the average family

FRESH FRUIT

Fresh fruit imports into Salvador are not listed separately But United States trade statistics show that in 1929 we shipped about 6,232,000 pounds of fresh fruit into the Republic In all probability very little additional fruit was purchased overseas, though imports of tropical fruits across land frontiers from neighboring countries may have been considerable

Our interest is almost entirely in temperate climate fruits, however, and in these items we had very little competition During 1929 we shipped into Salvador about 359,000 pounds of apples, or 8,163 boxes of 44 pounds net weight each These were shipped largely from San Francisco, and probably included California fruit as well as some grown farther north Fairly large, firm, red apples which take a good shine and are attractive in appearance are preferred The better-class grocers retail most of this fruit, but some is sold in the small corner stores and by street vendors

Grapes are second in importance, and in 1929 we shipped into Salvador about 227,000 pounds of grapes These are chiefly grown and shipped from California, and are marketed much the same as apples Small quantities of European grapes are occasionally seen in the stores

In 1929 we also shipped 12,000 pounds of pears, 2,500 pounds of peaches, and 49,00 pounds of other fresh fruit The sales of these items is largely confined to the better grade grocery stores in the larger towns The bulk of the population content themselves with the cheap tropical fruits grown locally, such as bananas, pineapples, oranges, limes, grapefruit, mangoes, pawpaws, etc Imported fruit is more or less of a luxury, and is sold much as confectionery is marketed—in small unit sales of one or two pieces of fruit for immediate consumption

The demand for temperate climate fruit seems to be increasing, and it is the price factor and not taste that is preventing its popularity from growing more rapidly

DRIED FRUIT

There is a limited market in Salvador for dried fruit, but the demand seems to be gradually increasing Nearly all the dried fruit is shipped from San Francisco Import figures do not list this item separately, so United States export figures are used as a basis of measuring the current demand

In 1929 we shipped to Salvador 40,098 pounds of raisins and 18,945 pounds of prunes, besides small quantities of apples, peaches, apricots, and other dried fruits Probably at least 75 per cent of the dried fruit imported during the year came from the United States, and possibly our share ran as high as 85 per cent There is some slight competition from Europe, chiefly in raisins and prunes

There is a demand for raisins on the stem, especially for holiday trade, and these come in 10 and 20 pound cases, net weight, usually strapped together in bundles of 2, 5, or 10 Loose raisins in similar boxes are also imported There is a growing demand for the loose raisins packed in 1½-ounce cartons, net weight, 250 or 500 to the case These last are usually sold under an advertised brand

There is a considerable demand for dry prunes packed in 5-pound airtight tins, net weight, 6 to a case, and in No 2½ cans packed 24 to the case Other dried fruits are little known as yet, but they should become increasingly popular because they sell at prices within the reach of thousands of consumers, and thus appeal to a much larger class than do canned goods Bakers are also buying larger quantities of dried fruits, and it appears reasonable to assume that their purchases will grow heavier from year to year as they increase the scope of their activities and the variety of their products

Dried fruit from France, Germany, Switzerland, Spain Italy, and Belgium pay $24 81 per 100 kilos, gross weight, import duty, while that coming from the United States and other nonfavored countries pays the full rate of $35 per 100 kilos, gross weight. France and Spain take full advantage of this preference, and the other favored countries sell more fruit than they would otherwise be able to market

FRESH VEGETABLES

Salvador imports almost no fresh vegetables from overseas, according to official trade figures, but probably small quantities enter across the borders of neighboring republics

Tropical vegetables are produced in the country, but the population does not consume temperate climate vegetables to any extent Most of the local vegetables are root crops, and include white and sweet potatoes, yams, okras, and various vegetables of the squash type.

Green vegetables are not well known, but small quantities of lettuce, tomatoes, and string beans are grown

In 1928 imports of potatoes amounted to 6,220 kilos, of which 2,244 kilos came from the United States and the balance from Honduras They are usually packed in 100-pound crates, net weight. but sometimes come in 50-pound crates Very few onions are imported, but those that do come in are packed in similar crates

DRIED VEGETABLES

In 1928 imports of dried vegetables amounted to 356,762 kilos, but of these only 7,396 kilos came from the United States Mexico supplied 261,816 kilos or about 76 per cent of the total Nicaragua stood second shipping 68,324 kilos, and Japan ranked fourth with 4,411 kilos

Beans are the most important dried vegetable imported, and the imports cover several distinct types and colors The bean in greatest demand is called "Mexican red," and the "California red" also sells to some extent Recently there has developed a demand for a small white Japanese bean called "Kotenashi" American beans usually come packed in 100-pound double jute bags, gross weight

PACKING HOUSE PRODUCTS

Lard—This is the most important packing-house product imported into Salvador, and in 1928, 150,399 kilos were brought in Of this total, 92 per cent, or about 138,000 kilos, came from the United States Small shipments were received from Nicaragua and Honduras.

Most of the lard comes packed in 37-pound cans, net weight packed two to the crate However, sometimes 35-pound cans are used Some exporters use crates and others prefer cases, but the crate seems more generally used in Salvador Almost no lard comes in the small 5-pound pails, but some enters in large tierces holding about 360 pounds of lard

Local animal fats are used whenever they can be obtained, but no commercial packing plant has been established in the country. Butchers retail what little surplus fat they have, and farmers put aside what they can when they slaughter

Hams and bacon.—There is a fairly good market for hams in the Republic, but they are not listed separately in import statistics However, most of the hams came from the United States and our figures show that in 1928 we exported to Salvador 31,476 pounds of hams and shoulders A few uncooked hams come in from England.

Hams weighing 10 to 12 pounds are preferred by the home trade, but the store and hotel trade buy slightly larger—usually from 14 to 16 pounds A few 6 to 8 pound hams are also sold, but the 10 to 12 pound sizes are the best sellers

Cooked ham in cans is gaining in popularity and when sliced is usually sold in ¼, ½, and 1 pound cans Half and whole cooked hams are also packed in individual irregular shaped cans. The French cooked ham appears to be in best demand at present

Hams are packed in air-tight, moisture-proof wrapping, and usually in cases with net weight of about 100 pounds The number to the case depends on the size of the hams Some are also packed in salt, and several merchants declared that they preferred this method, saying that when it is used the hams keep longer in tropical climates. However, in many tropical countries the salt pack is rarely seen

The market for bacon is limited, probably not exceeding 2,000 pounds a year Practically the entire supply comes from the United States The consumption of bacon is largely limited to foreigners and cosmopolitan natives

Canned meats—Canned meats are not listed separately in the import figures, but United States statistics show that in 1928 we shipped about 6,000 pounds of canned meats to Salvador Probably we had about half the total business available in this line, which would indicate that total imports must have approximated 12,000 pounds

In 1928 we shipped to Salvador 296 pounds of canned beef, 4 697 pounds of canned pork, 511 pounds of canned sausage, and 483 pounds of other canned meats The beef consisted largely of corned beef, the pork, of deviled ham and the sausage, of "Vienna style" sausage Probably tongue was an important item in the "all other" classification

French competition is largely in meat and poultry pastes and cooked ham, and Italian competition is chiefly in canned bologna Other European countries supply small quantities of miscellaneous products

Other meat products—Almost no fresh or pickled meat is imported The population depends almost entirely on locally raised cattle and hogs for its meat supply On the whole, the natives are not heavy meat eaters, and when they do buy meat, price is usually the important factor Poultry is raised by many small farmers, but chicken is too expensive for the average Salvadorean, and the poultry and eggs are carried to the nearest large town for sale to the salaried class, hotels, and foreigners

Native cattle is lean and the meat is usually tough Small tenderloin steaks that are fairly good are to be had in most towns Hogs are also lean, and only when killed very young is their meat tender Very few sheep are raised and mutton is scarce Goat meat is used to some extent by the poor people Poultry is usually lean and scraggly, and must also be killed when young for best results

Meat is nearly always eaten the day it is killed which partly accounts for the scarcity of tender meat Refrigeration facilities are limited, but the well-to-do householder can keep meat in his own ice box for an extra day or two, and improve it considerably

There is some demand for tallow to be used in the manufacture of soap and candles

Prepared meats in tins, glass, crocks, or other packages are included in the list on which the six European countries receive the tariff preference In the case of meats, the preferred rate is $29 29 per 100 kilos, gross weight, and the general rate is $51.40 per 100 kilos Only in the case of canned meats has this preference been of any marked help to European exporters

FISH AND FISH PRODUCTS

Though not large, the consumption of fish in Salvador is interesting because of the variety of types consumed and the keen competition from European canners Salvadorean statistics lump all fish imports under a single classification, so it is difficult to estimate the consumption of the various fish products and to decide what share of the business in each type is going to the United States In 1928 total fish imports amounted to 165,315 kilos, and of this 68,779 kilos came from the United States Spain supplied 42,580 kilos, France, 28,948 kilos, and Norway, 12,820 kilos. We obtained about 42 per cent of the fish business

Practically no fresh fish is imported, and very little salt fish enters the market Some salt cod comes from San Francisco, usually in 30 or 40 pound cases, net weight More recently a small quantity has been in 1-pound packets, 40 to the case

The business obtained by France, Spain, and Norway consists almost entirely of small sardine sales, whereas ours is divided between California sardines, salmon, shellfish, mackerel, and salt cod Spain and France have a considerable advantage over other countries, including the United States, which do not receive the preferential tariff treatment, since prepared fish in any kind of packing is listed among the items on which preferential duty rates are granted However, notwithstanding this preference, we are able to compete in all fish lines, and only in sardines do we lose any considerable amount of business to Europe

Sardines—The most important fish import is sardines, and these come chiefly from the United States, Spain, France and Norway We supply the large California sardines in 15-ounce oval tins, net weight, and a very little in 7½-ounce oval tins These are usually packed in tomato sauce, but sometimes in oil and occasionally in mustard The tins are packed 48 to the case In 1928 we shipped 70,320 pounds of sardines to Salvador

The best grade of small sardines comes from France in 4½-ounce tins, net weight, and sometimes 4-ounce tins, both packed 100 to the case These come in olive oil, other oil, tomato sauce, and also a hot pepper sauce Cheaper small sardines enter from Spain and Norway, and occasional shipments arrive from Portugal and Canada (New Brunswick) Maine sardines are rarely seen in the market. They are too expensive for the general trade and in the high-class stores the French sardines are preferred All these small sardines are packed in cans of from 3 to 4½ ounce net weight, but the tendency is for the cheaper grades to come in the smaller tins Cans are supplied with and without keys, but the cheaper grades usually omit the key

The general tariff rate on sardines is $35 per 100 kilos gross weight, and the preferential rate is $24 81

Salmon—The demand for salmon is limited, but almost the entire purchases come from the United States Possibly some of the cheaper grades originate in Canada, but practically all salmon imported is shipped from San Francisco In 1923 the United States exported 5,463 pounds of salmon to Salvador

The largest seller is the least expensive grade, the chum, and most of it is nearly white in color The pink salmon sells to a limited extent, and there is a very small market for the more expensive red types The usual can for salmon is a No 1 tall, but some of the better grades sell in No ½ flat cans

Mackerel—Some canned mackerel has been selling during the last year, and this is put up in No 1 tall cans which closely resemble the salmon cans, with similar labels This product undersells salmon, and for that reason has gained a foothold in the market

Tuna—The demand for tuna is very light because of its cost to the consumer, and it will be some time before it moves in appreciable quantities It sells in Nos ¼ and ½ flat cans

Shellfish—Shellfish move surprisingly well and in 1928 the United States shipped 3,544 pounds into Salvador Oysters are the best sellers and are packed in 5 and 6 ounce tins, 48 to the case Shrimp and lobster are probably next in popularity Lobster is packed in Nos ¼ and ½ cans, while the shrimp is usually put up in 5 and 6 ounce tins Both are packed 48 to the case Some crab meat and prawns are also sold, packed, respectively, in No ½ flat tins, and 5 and 6 ounce cans

The general and preferred tariff rates are given in the section of this bulletin devoted to the tariff

DAIRY PRODUCTS

Salvador imports considerable quantities of dairy products each year, and the most important of these are cheese, canned milk, and canned butter Preferential tariff rates are granted on cheese and butter to the six favored European nations Rates are given in the section of this report devoted to the tariff

Milk—Very little fresh milk is produced in Salvador, and the demand for this commodity is not large It is used chiefly by the middle and upper classes in the form of boiled milk to be mixed with coffee for serving at breakfast.

In 1928 Salvador imported 37,132 kilos of milk of all kinds, according to official statistics Separate figures for the various kinds of milk are not given, but undoubtedly the bulk of that listed is canned milk Of the 37,000 kilos, 35,000, or about 94 per cent, came from the United States Small quantities were brought in from the United Kingdom and Switzerland.

Evaporated milk is the type of canned milk in best demand Very little condensed milk is imported The United States export figures for 1928 show that in that year we exported to Salvador 51,965 pounds of canned milk, divided as follows: Evaporated, 48,016 pounds; condensed, 3,949 pounds In view of the fact that we supply almost all of the imported milk, these figures show clearly the preference for evaporated milk

The evaporated milk comes in 6 and 16 ounce tins, net weight, and the condensed milk usually is packed in 14-ounce tins

Powered milk is beginning to enter the market, but so far is has not gained any considerable foothold It is usually packed in 1-pound, 6-pound, and 50-pound tins, net weight, packed, respectively, 24, 12, and 1 to the case A few bakers buy powdered milk in barrels containing 250 pounds

The greater part of the canned and powdered milk brought into the country is used by foreigners, invalids, and children The consumption of prepared milk may be expected to increase as it becomes more widely known and as the per capita purchasing power of the population increases.

Cheese—Salvador imports cheese in important quantities from Honduras and Nicaragua, but up to the present very little has entered from the United States In 1928 the total imports amounted to 293,000 kilos, of which 139,000 came from Nicaragua and 136,000 from Honduras From these figures we see that these two Central American countries supplied together nearly 95 per cent of the total

The Netherlands was the principal European source of supply and about 11,000 kilos came in from that country Only 1,256 kilos entered from the United States

The Central American cheese is usually made in large disks, is white, and resembles somewhat an American cream cheese, except that it is coarser and not so rich The principal cheese brought in from the Netherlands is the round, red ball type, often packed in individual round tins of from 3 to 4 pounds net weight The small amount of cheese that comes in from the United States is usually packed in 5-pound bars, wrapped in tin foil, and packed in separate boxes Sometimes these boxes are packed in cases, about 10 boxes to the case, and sometimes they are bundled together with metal wire or tape and shipped without any outer covering, usually 5 or 10 boxes to the bundle

There seems to be an opportunity for developing our cheese business to some extent, principally among the consumers of above average purchasing power If we are able to ship an inexpensive plain cheese in bulk we may be able to make some inroads on the larger market

Butter—Butter is not generally used in Salvador, and cheese is eaten with bread instead of butter Some butter is produced in the country, but this is usually consumed in the larger centers by people of above average purchasing power

Imports of butter are small and in 1928 only 4,860 kilos were brought into the country About one-quarter of this total came from the United States, while Honduras and Nicaragua each supply about one-third In addition to the imports of butter mentioned above, 796 kilos of butter substitutes were imported and all of this came from the United States

American butter is usually packed in cans of ½, 1, 2, and 5 pounds, gross weight It is said that formerly net weight was used but that the change to gross weight was necessitated by the custom of European butter packers to use gross weight

The market for imported butter will probably continue to develop slowly, but there is apparently little prospect of any considerable growth within the next few years Very probably domestic butter production will increase at the same time, since the quality of the local product is expected to improve

MISCELLANEOUS FOOD PRODUCTS

Jams and jellies—There is a small market in Salvador for jams, jellies, and marmalades Their delivered cost puts them beyond the reach of the average consumer, and only the well-to-do class can afford to purchase them Possibly more of the cheaper types, packed in cans, could be sold, if they were aggressively pushed and priced at the minimum figures Any increase in sales of the better grade bottled products will be very slow

In many of the middle and upper class homes, preserving of tropical fruits is carried on to a limited extent, and the products thus made of naturally much cheaper than the imported article In 1928 the United States shipped but 883 pounds of jams and jellies into the country, but this probably does not represent more than a quarter of the imports English jams, jellies, and marmalades are in best demand, and some come in from France, Germany, and other European countries, several of which have the advantage of preferential duties

Confectionery—Salvador's import figures for 1928 show that in that year 53,876 kilos of confectionery were brought into the country Of this total, 24,001 kilos came from the United States and 16,902 kilos from the United Kingdom, our most serious competitor France supplied 6,918 kilos, Switzerland 2,108 kilos, and Italy 1,598 kilos Small amounts came in from other European countries and a few shipments from Honduras were reported

Nearly 45 per cent of the imports came from the United States, but since chewing gum accounted for a considerable part of our sales our share in the actual candy business was decidedly less United States export figures for 1929 will give an idea of the division of our trade In that year we shipped to Salvador 4,710 pounds of chocolate confectionery, 18,827 pounds of other confectionery, and 13,480 pounds of chewing gum

There is a limited demand for package chocolates in Salvador, but they cost too much for consumption to be large England supplies the greater part of the package chocolates, and probably the United States ranks second in sales of this candy Loose chocolates come from France, Italy, England, and the United States, but probably France and England have most of this business Bar goods are largely American, but they do not sell very well

In hard and sugar candies we seem to be leading, and our sales of gumdrops, fruit drops, and Jordan almonds are worthy of attention Switzerland sells milk chocolate, in bars, for the most part Some hard candy enters from Germany, Holland, and Belgium

Confectionery pays an import duty of 51 cents per kilo gross weight, unless it originates in one of the preference countries In the latter case it pays but 29 cents per kilo, gross weight Notwithstanding this, the two chief suppliers, the United States and the United Kingdom, are "full-duty" countries. The other three important sellers, France, Italy, and Switzerland, however, receive the benefit of the preferential rate

British brands of chocolates and hard candy have been established in the market for many years, and they have earned a reputation for quality and excellent packing and wrapping They keep well and seem less susceptible to climatic changes than most of the products of competitors In package chocolates the highly decorated and gayly colored boxes from England appear most popular Most of their better grade candy is individually wrapped

The United States has been more successful with medium grade merchandise, and particularly in loose candy, bar goods, and small-package fruit drops. Though the limited per capita purchasing power of the people prevents any rapid development in the candy trade, a gradual increase in consumption seems likely American chewing gum has met with considerable success, and there seems room for further development in this line Great caution should be taken in the matter of wrapping and packing as well as in the manufacture of special types of confectionery capable of withstanding the severe climatic conditions of the Tropics

Sugar—Salvador produces about 25,000 tons of raw sugar each year and exports about 40 per cent of the total In 1928 exports of raw sugar (yellow crystals) amounted to 1,486 metric tons, of which the greater part went to the Netherlands Exports of washed sugar for the same year amounted to 8 283 metric tons, of which about 80 per cent went to the United States and about 12 per cent to Honduras

Most of the local consumers use the domestic washed sugar, but the better class trade prefers the imported refined product In 1928 imports of refined sugar reached a total of 17 tons Most of this consisted of granulated, but small quantities of lump are sold in the larger towns Practically the entire amount came from the United States

Baking powder—There is a small demand for baking powder, and practically the entire demand is supplied from the United States One well-known American brand supplies the greater part of the household trade, but bakers, hotels, restaurants, and other large consumers buy any one of several less extensively advertised makes

The household trade prefers the small 4 and 8 ounce tins, net weight, and other consumers usually buy the 1, 3, 5 and 10 pound tins The trade in baking powder is gradually increasing

Vegetable oils—In 1928 Salvador imported 58,716 kilos of olive oil, the bulk of which came from Spain and France, each supplying about equal quantities Imports of cottonseed oil amounted to 63,724 kilos, of which Peru supplied 48,497 kilos, and the United States but 13,442 kilos Imports of miscellaneous vegetable oils reached a total of 93,688 kilos, and of this total 64,836 kilos came from the United States Peru shipped 16,988 kilos, and the United Kingdom 9,432 kilos Most of the miscellaneous oil from the United States was probably corn oil, and most of that from the United Kingdom was probably soyabean oil

Vegetable lard sells to a limited extent in the larger towns, particularly the capital It comes from the United States and France, but we have been doing most of the business American shortening comes in 1, 3, 6, and 50 pound cans, net weight The volume of sales depends largely on the movement of prices in relation to hog lard prices' If prices can be maintained at a competitive level, consumption of vegetable lard should register a gradual increase as the commodity becomes more widely known

U. S. DEPARTMENT OF COMMERCE
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BUREAU OF FOREIGN AND DOMESTIC COMMERCE
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FRUIT MARKETS IN EASTERN ASIA

A Joint Investigation by the United States
Department of Commerce and the
University of California

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FOREWORD

While American firms have been shipping fruit products to the Far East for the last 20 years, it is well known that the market so far developed is relatively small Many people have raised the question whether this market is capable of expansion In order to answer this question, an investigation of the fruit markets of eastern Asia was undertaken as a joint project of the United States Department of Commerce and the University of California, under the direction of Prof B H Crocheron The object of the investigation was to make a thorough study of the possibilities of eastern Asia as a market for fresh, canned, and dried fruits, the problems involved in building up the market, and to arrive at some conclusion as to what steps might be taken to develop this market While the investigation confirms what we already know in regard to the situation, it is of value because of the thorough method by which it was carried out and should help to definitely settle many questions that have been raised in regard to the possibilities of a wider market in the Orient

The conclusions indicate clearly the limits of the present market, they also point out that further expansion is largely dependent on the development of greater purchasing power and higher standards of living for the masses of the Orient Many believe that this will come slowly and that it promises a potential market some time in the future If this is true, it justifies careful planning and study of the food habits in the Far East and careful watching on the part of exporters for changes in standards of living, changes in food habits, and the development of greater purchasing power

This bulletin is essentially a summary of Professor Crocheron's observations The complete report will be published by the University of California, and copies will be available to those who desire to study the details of the investigation These details are important not only to those engaged in exporting fruit products but, it is believed, also to all food exporters, as they give a great deal of information about the food habits, purchasing power, and customs of the people, as well as a great deal of background about their own home production of food and its uses

Professor Crocheron acknowledges the material assistance rendered by the representatives of the Departments of Commerce and State in the Far East, and others who gave liberally of their time and experience

WILLIAM L COOPER, *Director*,
Bureau of Foreign and Domestic Commerce

APRIL, 1930

FRUIT MARKETS IN EASTERN ASIA

By B. H. Crocheron, Professor of Agriculture Extension, University of California, and W. J. Norton, Specialist in Agriculture Extension, University of California

Asia is a large producer of fresh fruits, and in most of the countries studied great quantities of native fresh fruits come upon the market at low prices. In all countries native fruits are offered at such low prices that they preclude the possibility of consumption of imported fresh fruit by Asiatics except among a small group who may desire an occasional novelty in the form of an apple, a bunch of imported grapes, or an orange.

The production of fruits of European varieties is increasing in Japan, China, and Chosen. These fruits are produced at low cost and, although often inferior to those grown in California, they sell at prices low enough to command the native trade. In the tropical countries native fruits are so abundant and so cheap throughout the entire year that, in comparison, the imported fruits are extraordinarily expensive. Competition from Australia, Japan, northern China, and Palestine is increasing in the Asiatic tropics. These countries ship by shorter haul and usually without refrigeration into these markets.

Fresh imported fruits can only be sold in and near the ports of most countries in Asia. For wide distribution, fresh fruit requires excellent conditions of transportation and storage, otherwise the market must be limited to those places where the fruit is landed. The interior of Asia certainly does not have good transportation or good storage. In most of the countries of Asia, fresh fruits can not at present get far beyond the ports.

Thus, markets for American fresh fruits in Asia are limited not only by the buying power of the people, which limits the market for imported commodities of every kind, but also by the great quantity and low price of native fruits, by the competition from other countries, by the perishable nature of the product, and by poor transportation. Fresh imported fruit must, at present, find its purchasers among the natives and Europeans close to the best transportation. Of these the number who could be induced to buy fresh fruit from America is small in comparison with the volume that must be marketed in order to influence the general price level.

Finally, it is impossible at the present time to ship enough fresh fruit under refrigeration across the Pacific to influence prices. At present, all the ships of all the lines that touch at California bound for Asia, or that are expected to voyage in 1930, have a combined refrigeration space which, multiplied by the number of voyages that each ship makes in a year, totals 118,219 tons of 40 cubic feet. In an average month this is equivalent to 9,852 tons of space. But only 16 kegs of fresh grapes weighing 32 pounds each, can be stored in 40 cubic feet. Even if it is assumed that there would be no difficulty in selling 40 times as many grapes in Asia as at present, it would require more than all the refrigeration space in all the ships that run between California and Asia loaded to their utmost capacity with nothing but fresh grapes for the entire year to unload enough grapes on the Asiatic market to raise the price in California 5 per cent

SIZE OF PACKAGES

Small packages of canned and dried fruits present the best opportunity to make large increases in our present fruit markets in Asia —If American fruits are to obtain large markets in Asia they must be so presented that a comparatively small initial expenditure will buy a unit of the product The success of the exporters of oil, tobacco, crackers, and soap to that continent is based upon several factors, one of which is that the product is purchasable in small amounts by persons of low income The small tin of fruit and the small package of dried fruit must be emphasized if markets are to be greatly increased

Among all the California fruits in all forms, small packages of dried prunes and small cans of peaches present the best general possibilities for materially enlarged markets Raisins from California are already popular among the people of Asia Even at present, with the comparatively small effort which has been made to market raisins in Asia, we sell there about 1 9 per cent of the United States raisin crop We sell in Asia only 0 3 per cent of our dried prunes and 0 3 per cent of our canned peaches, although the volume of raisins in fresh form in California is about double that of prunes and four times that of canning peaches

Small packages of dried prunes might be made popular in Japan, China, the Philippines, Siam, India, and perhaps even in British Malaya and the Netherland East Indies under certain conditions Because prunes offer an opportunity for introduction as a medicine as as well as a food, the possibilities which they present are even larger than those for raisins There is need for a laxative among those on a rice diet, and coupled with this need is the general active desire for greater health and strength In eastern Asia the natives have long sought charms and nostrums for that purpose, and from these they have progressed to patent medicines More recently they have gained some knowledge of diet and its effect on health America and Europe are not the only places where vitamins are discussed, these new and mysterious substances appeal to the psychology of the East If the lower classes are still steeped in the auguries and talismanic medicines of the Orient, there is clear evidence that they are also interested in the new health foods of which they are beginning to hear from missionaries, European physicians, and the companies manufacturing canned and dried milk, cereals, and baby foods Dry prunes could with truth and sincerity be promoted as an aid to health and strength among many peoples of the Far East

If the volume of prunes shipped to Asia became as great as the present volume of raisins exported, the market in eastern Asia would then consume about 1 9 per cent of the world's prune production (on the average of 1923–1927), or slightly less than 3 per cent of the California prune crop Such increase is entirely within the bounds of practical marketing possibilities, provided adequate funds were available for promotion among the people of the Far East Even this, however, might not create any clearly perceptible increase in the farm price of prunes

Dried fruit to be popular in Asia must, at present, be offered as a condiment or confection to be eaten dry out of hand The use of dried fruit in cooking might follow later Because the people of Asia do not know how to cook dried fruits and have no present place for it in their customary meals, it would be much more difficult to introduce dried fruits for the purpose of cooking than for eating as a sweetmeat to be munched at various hours of the day The vast amount of eating between meals, habitual all over eastern Asia, makes this use a large one once it is developed

Small cans of peaches and other fruits present a possibility for expanded markets China is a particularly favorable field for small cans of various fruits American canned fruits could come into their own in China if they could be put within the possible range of purchase of a larger number of people by means of a smaller package and then made known to them as a high-quality product The Chinese like canned fruit, and they respect quality The Philippines, Siam, Burma, and Ceylon offer smaller opportunities, only because of their smaller populations Japan will present a large possibility for American canned and dried fruits if the luxury tariff of 100 per cent is radically revised downward India might consume much larger amounts of canned fruit than at present, if the market were consistently cultivated

At present the large No 2½ can of fruit is standard throughout Asia, and its use is confined to the purposes for which it is adapted Canned fruit is mainly used only by the well-to-do, rich natives use it for gifts and for feasts, and Europeans use it when entertaining friends The common daily use of canned fruits in the home, similar to that in America, is not prevalent anywhere in Asia except in a few places among a small group of rich Europeans

It is obvious that as long as the large can of fruit is the only size used it will sell only to those who have enough money at one time to buy a luxury of that magnitude Furthermore, it will only be bought by them for occasions for which the large can is fitted Thus, the large can has both a limited clientele and a limited use

The small can would appeal to a far larger public, provided its price can be reduced so that there is not too great a penalty for buying in a small quantity In many places it was evident that retail merchants, and perhaps wholesalers, were exacting as much profit from the sale of a small can as from that of a large one They perhaps worked upon a sale basis rather than on a percentage A sale was a sale and it ought to bring in about so much return Perhaps a high price was charged because the merchant feared that the small size would not sell and therefore hoped to regain the cost of the whole case by the returns from a part of it

Except in Japan and India, the Chinese merchant prevails from north to south over all of eastern Asia From Harbin to Surabaya retail merchandising is in the hands of the Chinese These merchants usually stated that the small can of fruit would not sell because nobody had ever asked for it The Chinese are notoriously deficient in creating a demand, but are active in supplying a demand once it is created The imagination of the Chinese merchant seldom goes beyond what has been customary in the past

Likewise, it was usual in many cities for agents of California packers to express the opinion that the small can of fruit would not sell in Asia because people only used canned fruit in entertaining friends and for that purpose the reduced sizes were too small Agents often stated that, although they had placed small cans, in 1-pound and 8-ounce sizes, on sale, there was small demand for them, they had hoped they would succeed but the attempt was a failure Therefore, the matter was settled in their minds, only the large No 2½ can would sell and that only to the rich

The fact is that no attempt has been made to sell the small sizes to the potential consumer Agents have, perhaps, induced and even compelled the dealer to buy one or two cases of the small cans After waiting for some time, the agent inquired if the dealer wished to buy another stock and was told by the dealer that he still had on hand most of the cans he unfortunately bought There was no repeat order, so the agent correctly inferred that there was no demand

Not anywhere has a real attempt been made to place the small sizes before the consuming public in such a way as to create a demand Many householders declared they had never seen the small cans On investigation it often developed that these were on sale, if you inquired for them, in their favorite store The investigators frequently found a few 8-ounce cans on the top shelf The Chinese merchant was often voluble in explaining that nobody asked him for them His prices were usually 10 to 50 per cent higher than the cost warranted

On the other hand, executives of the American corporations which are successfully selling to Asiatics, or seriously considering the proposal as a possible American enterprise, expressed their belief that the small unit of canned or dried fruit might reach a large sale if modern merchandising methods were applied Many educators, statesmen, and social workers stated that the way to reach a large volume of sales for American canned or dried fruits was through the introduction of the small unit to the native consumer of the upper and middle classes All agreed that this could not be accomplished by merely inducing a few merchants to place goods on sale All realized that sustained and skillful trade promotion must accompany their introduction and that, if possible, the price should be adjusted so that a package would retail for a coin of local currency

Small packages of dried fruit, particularly prunes and raisins, offer even better opportunities for reduction in size of package than do canned fruits The cost of the can imposes an obstacle that limits the size to which it can be reduced—and at present canned fruit requires a tin container Containers for dried fruits, on the contrary, can be reduced to a very small size and, if necessary, they can be sold without any container at all, even one fruit at a time They thus present some of the merchandising possibilities of the cigarette which, generally, has succeeded because it was possible to sell one cigarette rather than a package of them

The small can of fruit is essentially a new commodity for a new public Any development of fruit markets in Asia means that old customers must use the fruit in new ways, or that new customers must be found, or both In either case, since the product is a luxury rather than a necessity, the new customers must be introduced to the product, the old consumers must have the new use put before them

The Chinese merchant is not fitted to do either of the above The European agent is not equipped to do it for him Passive order taking on the part of the Chinese merchant and of the European agent have been characteristic of the Asiatic market for American canned fruits. So far the Chinese merchant has been active in regard to underselling his competitors, and the European agent has been active in supplanting the use of some other brand by that of his own. Neither merchant nor agent has sought to create new demands. They could not do so. Money and time spent on creating new demands merely put their competitor in a better position to make lower prices. The competitor might meet trade promotion by the expenditure of an equal sum on lowered prices. Thus everybody scrambles for the few old customers. Nobody endeavors to create new uses and new demands.

SELLING AGENCIES

The present system of collecting indent orders through agents will not develop a large market in the Far East for American fruits.—The present system whereby various companies and corporations marketing fruits under certain brands act through agents in Asiatic territory is cheap but inefficient. Usually these agents also represent a large number of manufacturers, among whom the exporter of American fruits is one. Many agencies with limited personnel and small offices stated that they represented from 20 to 200 manufacturers. They sometimes represent everything from locomotives and airplanes to crockery and canned goods. Their offices are often a medley of dusty and cluttered samples among which a few rusty cans of American fruit may, with persistence, be found in a corner. Because these agents have not been furnished with any material funds for trade promotion and because the active demand for American fruits is small, they have in many cases found the business far from lucrative. In any event, when handling such a large number of entirely different commodities, their attention can at best be directed to any one of them in small proportion. These agents accept or collect orders which are indented to America.

The whole system whereby a merchant is required by draft or deposit of security to order fruits far in advance, thereby anticipating his wants, might be fairly efficient when an irresistible demand has already been created, it is far from effective when the demand is latent or nonexistent. For American canned or dried fruit to sell in any large quantities in Asiatic territory, stocks must be maintained at central points so that merchants can obtain the fruit quickly after their orders are placed without the deposit of money for a considerable period in advance.

Furthermore, the attention of an entire corps of people must be directed toward the creation and supply of this demand. The Asiatic market will not react to disinterested selling. At the present rate of demand for American fruit, Asiatic merchants in large numbers will not come to agents and demand it. In the past, the market has chiefly been supplied through passive order taking, because the agents would not, or could not, adopt any other method.

The writers can not claim to be the first to have made the above observations. G. O. Woodard, American trade commissioner at Shanghai, in an unpublished report, "The Canned Fruit Market in

China," dated December 23, 1927, in discussing the situation in that market stated

> In the two or more decades that American canned fruits have been offered in the China market, with possibly one exception, not one of the canned fruit lines sold has been represented by an organization in a position to study the requirements of the China market with a view to formulating a constructive selling program based on the peculiarities of this particular market There has been very little attempt, if any, at any really sound, constructive selling program There has been only passive order taking
>
> It is quite natural that this should be so since the general import house is concerned with 20 or 30 or even 40 or 50 items more profitable from the standpoint of returns They are, obviously, in the business for immediate profits and can not possibly become concerned with developing an organization to undertake extensive sales promotion work of a pioneering nature that would perhaps only yield results five or more years hence * * * In the light of the actual returns from two or more decades of passive handling of already established brands of canned fruits, however, until such time as there is individual or group endeavor put forth along the lines of studying the infinite peculiarities of the China foodstuffs market, it is quite patent that growth in sales will continue to be slow, due primarily to passive and disinterested handling, lack of constructive selling programs, and the almost total absence of sound merchandising interest of whatever nature

The above statements, made with regard to the merchandising system in China, might be applied with equal truth to the situation throughout the entire Far East

METHODS OF TRADE PROMOTION

By skillful, extensive, and sustained trade promotion it would be possible to increase several fold the exports of certain fruits to the Far East.—Although in Asia trade promotion has been successfully waged for many American commodities, no considerable trade promotion has been conducted for American fruits The nearest approach was made by an American association which about 13 years ago devoted a small amount of funds to popularizing their product among the peoples of the Far East This resulted in a tenfold increase in the export of raisins to Asia, so that at the present time the exports of grapes in that form exceed the combined exports of all other fruits in all forms

Several factors contributed to this result First, this organization established its own representatives in the countries in which it was chiefly operating It did not operate through agents or indirect representatives. Second, at central points it established stocks on hand, and did not attempt to create a large business through indent orders Third, it packed the commodity in small packages It did not expect to make the large package, originated for use in America, fit the needs of the Orient Fourth, it made these packages and this fruit known to the people through trade promotion in various forms. It did not depend merely on advertising, valuable as that may be in conjunction with other methods Fifth, it established its own corps of salesmen, who took orders for native and European wholesalers at the expense of the association It did not depend on Chinese wholesalers to create a demand.

Viewed from the standpoint of the large volume of the raisin crop, the enterprise in Asia was on a small scale The results have been comparable to the effort expended Larger funds and greater efforts would have brought increased results Nevertheless, compared with the markets for other American fruits in Asia, the demand for raisins is so much larger that it dominates the whole horizon

To materially increase our markets, American fruits and their virtues must be made known among the people to whom they are to be sold Except for raisins, American fruits are known among only comparatively small groups of people in all the countries of the East The great majority of Chinese, Indians, and East Indians have never seen a prune and would not recognize it if it were shown to them These people will not rush to demand the product, even though a package be standing on the shelf of their favorite shop or store They must be told of its virtues and its uses Such education over enormous territories and their crowded populations can not be accomplished quickly or easily Time, effort skill, and money would be required for the success of the enterprise Nevertheless, these same people have been educated to the use of kerosene oil, cigarettes, wheat flour, baby foods, and other commodities which a generation ago were entirely foreign to them The task is not impossible, it is merely difficult

Although the types of trade promotion adapted to various peoples and lands vary somewhat, certain general principles appear to be outstanding in the experience of organizations successfully selling in this market Among these principles are (1) An efficient personnel must be assembled, based upon high-class European or American executives who know the people as well as the country, and these must be supplemented with trained and educated natives (2) Extensive distribution must be accomplished before efforts are made to induce the public to purchase, that is, the native population must find the product available when they respond to the promotional appeal (3) The product must be purchasable in a small unit for a small initial expenditure (4) Extensive educational propaganda must be conducted to enable the people to test the product through a free or very cheap sample, and emphasis must be placed on the value of the product and the benefits which will accrue from its use, in fruits, the value to be emphasized is that better health and greater strength are to be gained from their use, in such a campaign personal contact with potential consumers at fairs, festivals, and other gatherings is a more effective method (5) Stocks must be on hand to replenish supplies of retailers at short notice

From a practical standpoint, the maintenance of an organization of high-caliber personnel might prove one of the most hazardous aspects of the enterprise The number of persons who have an intimate knowledge of the East and its people is decidedly limited Few of this number are of high ability

Often, under Oriental conditions, Europeans and Americans fail to measure up to the standards of business initiative maintained at home It is common throughout the entire Far East for Europeans to work five hours or less a day Often these hours are rendered ineffective by other hours that come between Whether an organization, even of high personnel, could be assembled in Asia and maintained at the level of business efficiency necessary to secure large results is a question that should be seriously considered in any definite proposals for such an undertaking There are, of course, many exceptions to the assumptions made above Since, however, they are exceptions rather than the rule, the proposal must face conditions as they exist

If large funds became available for a trade-promotion enterprise in Asia and if these were skillfully employed, it then would be within the bounds of reasonable expectation that within the next 5 or 10 years it would become possible to market in Asia several times as much fruit as is now exported thereto

In order to illustrate the statement that adequate trade promotion over a period of years might increase markets for American fruits several fold, the following calculation may be used

India probably represents one of the most difficult countries for trade promotion because of the peculiar food and religious habits of many of its people because of the very high percentage of its population who live in hundreds of thousands of small villages and because of the low average purchasing power of the population Let us calculate the possibility India presents on the basis of the conclusions of this report

Almost 90 per cent of all of the 318,942,000 people of India live in small villages Most of them are very poor To be conservative, let us assume that not a single can of fruit can be sold among these people, that all development of our future markets would lie entirely in the towns and cities In these, however, there are 32,500,000 people The best estimates given to this investigation evidenced that at least 10 per cent of the people in cities and towns could afford to occasionally eat canned fruit, provided they desired to do so Therefore, let us further assume that 90 per cent of the people who live in the towns and cities will not or can not eat canned fruit under any conditions whatsoever We have now brought our possible potential consumers down from about 319,000,000 to 3,250,000

In India, American canned fruit now sells almost entirely to Europeans and to some of the half-castes A very few Indians also eat it There are in India about 174,000 Europeans and about 113,000 half-castes Thus, the total white and half-white population is somewhat less than 300,000 If, to be again conservative, we assume that all of these now eat canned fruit and would eat no more under trade promotion, and if we likewise assume that an equal number of Indians, numbering 300,000, now eat canned fruit, which is probably far beyond the fact, we then have a present consuming public of certainly not more than 600,000 Many of the Europeans do not live in towns and cities They are scattered at every administrative office throughout India Many others do not eat any measurable amount of canned fruit But if, to be on the conservative side, we deduct all the Europeans, all the half-castes, and 300,000 Indians who already may possibly consume canned fruit from the upper 10 per cent of the city and town population, we have thus further reduced our possible new consumers in all of India down to 2,650,000

These 2,650,000 are men, women, and children The average size of the family in India is 4 9 persons [1] It would be fair to assume, then, that among these whom we are discussing there are at least 540,000 heads of families These are natives who belong in the upper 10 per cent of the population of towns and cities and who do not now consume American fruits If through trade promotion these heads of families could be induced to buy occasionally one can of fruit it would increase our present markets several fold If these heads of families each bought the equivalent of one No 2½ can of fruit once in two months, they would consume 3,240,000 cans of fruit a year, or, at 24 cans per case, 135,000 cases a year The present consumption in India is about 50,000 cases Such increased consumption therefore would be over two and a half times our present markets In other words, we would sell more than three and a half times as much as we now do

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[1] India Year Book, 1925 Published by "The Times of India," Calcutta

It may be contended that not all the upper 10 per cent of the families in towns and cities could be reached Doubtless this is true However, it can be contended likewise that the consumers who would be reached would probably consume canned fruit more frequently than once in two months The contention might further be made that many of the 90 per cent of the population in towns and cities, not counted in this estimate, would consume canned fruit occasionally if it were made popular among the upper classes of the population Furthermore, it can be claimed with equal strength that the popularity once having been created in India, material consumption could be developed among some of the people in the villages who spend large amounts of money on weddings, funerals, and other festivals It can further be claimed that, under trade promotion, Europeans could be induced to consume more canned fruit than at present On the whole, our basis of estimate is probably very conservative

The above discussion is given merely to indicate that because our present markets are small, the primary question involved in any scheme of trade promotion is not the buying power of the population, but whether ultimately those who have this buying power can be induced to include American fruits among the luxuries they purchase, and if so, whether the consumption created would repay the time, effort, and money expended In every country of eastern Asia, the per capita income is very low, everywhere the masses of the people are poor However, in considering the development of markets for American fruits we are not concerned as yet with per capita wealth nor with the average man Our sales of imported fruits in Asia are so small that we have not yet saturated the market among those who have the money to purchase

The question might be raised as to what can be done to improve our present fruit markets in Asia without the expenditure of any large funds for trade promotion or any considerable revision of the present marketing methods Under such conditions, little more can be accomplished than is now being done There are no areas in Asia with active wants for California fruit at present prices that are not supplied Something, however, would be accomplished through giving greater prominence to the smaller sized package, either of canned or dried fruit Furthermore, various packers might find it profitable to establish at favorable points representatives instead of agents This, of course, is more expensive since the overhead must be carried, whereas the establishment of an agency merely requires the payment of a small commission on whatever sales are made Nevertheless, it is striking that in many places of the East the popular brand which rules the market is that for which a representative has been established over a term of years or where an agent is employed who sells only a particular brand If the various companies could make appropriations sufficient to enable these representatives to do a considerable amount of free sampling and a limited amount of advertising in the vernacular press, sales would doubtless increase

RETAIL PRICES

Lower retail prices would increase markets for fruit in Asia —If there is such a thing as a "price market," it is in Asia Here, if anywhere, small differences in price determine whether a purchase shall or shall not be made Even the so-called middle classes are poor when judged by American standards Small economies become large when transported to the Far East Reductions in price, even though small, are therefore of great importance

One of the difficulties faced by imported fruits in the Far East is the fact that their local prices are quoted in the currency of the country, which has a unit of value lower than that of the American dollar The Chinese dollar, the Indo-Chinese piaster, the Siamese tical, the East Indian guilder, and the Indian rupee all have values that range around four-tenths of an American dollar But such is the psychology of the East, that the value of these coins come to appear, even to Europeans, as large as that of the American dollar Many of these coins resemble in appearance the American silver dollar and its subdivisions, and procure as much of local service or value as would the similar coins in America The silver dollar of China closely resembles in size and appearance that of America The quarter-guilder of the Netherland East Indies looks like the American 25-cent piece, the 10-cent piece of Ceylon is almost a counterpart of the coin by the same name at home, and yet these all have but 40 per cent of the gold value of similar American coins However, locally for many things they are practically their equivalent In taxi fares, personal service, and small purchases the coin bearing the same name produces the same return Thus, those resident in the Orient come imperceptibly to feel that a dollar of Chinese currency is as valuable there as the American dollar at home

The American housewife in China, calling at her favorite provision store inquiring the price of a can of peaches is told that it is on sale for one dollar a can She exclaims that this is very expensive and turns immediately to some local bananas which she is told are 2 cents each She is likely to go home with a half dozen bananas, meanwhile exclaiming at the high price of American fruits If at home she were told the price was 40 cents, she would probably not consider this as beyond the possibility of purchase, even though it were a few cents higher than the price to which she was accustomed In the translated currency her sense of economy prevents the purchase

Thus, entirely without thought of deception, she may write to friends at home, "I saw some California grapes for sale to-day and, would you believe it, they were 50 cents a pound Of course they were too expensive for us to afford When I think of the grapes selling for almost nothing on the farms at home I wonder why some one doesn't send grapes into this market " Because she has become accustomed to the coinage of the East, she entirely forgets to mention that the price quoted is in local currency and that the grapes were actually on sale at 20 cents a pound in the currency of those who read her letter in America She likewise ignores the 7,000 miles that stretch between the farms on which these grapes were produced and the Chinese fruit store where they were for sale She knows little of the large number of necessary services performed in conveying these grapes from one place to the other and arranging them for display before her eyes in a fruit store convenient to her home in a distant land

One of the factors militating against the sale of American fruits in the East is, thus, the low unit of local currency Slight decreases in price which may be brought about by improved methods of marketing and transportation are of high importance, because these decreases become multiplied when rendered into the local currency of the country where the product is sold

If America were able to sell its fruit in Asia at radically lower prices than those prevalent at home, large markets might be quickly developed At present we attempt to sell fruit at higher prices in Asia than in America Thus, in lands where native fruit is always cheaper, and often more abundant than in the United States, we strive to sell our competing fruits at higher prices than at home If it is difficult to sell high-priced fruit to the comparatively rich Americans it is much more difficult to sell it at still higher prices to poor Orientals

In Asia many American commodities sell at prices as low or lower than they do in America The great American tobacco and oil companies first embarked upon the extensive development of Asiatic markets because of a situation identical with that which faces fruit-growing in California In both oil and tobacco there arose an increased and uncontrollable production To save prices from going to the bottom, increased consumption was necessary To secure this increased consumption in Asia it was recognized that oil and tobacco must sell at low prices Kerosene must successfully compete with the native vegetable oils, cigarettes must compete with native tobacco in cheroot or pipe Even to-day, the selling price of kerosene oil and cigarettes is as low or lower in most of the countries of Asia than in America

Any measure that would remove a considerable percentage of the deciduous fruit production of California from customary marketing channels would not only raise prices but would also increase the gross return In the spring of 1929 a frost decreased the expected tonnage of deciduous fruits in California by about 23 per cent The remaining 77 per cent was marketed for about $27,000,000 more than the entire crop would have brought had there been no frost Although many individual farmers whose entire crop was lost suffered disaster, the State as a whole benefited by a larger return then if there had been no abnormality of weather

If an increased return resulted from destruction of almost one-fourth of the crop, an even greater benefit might be expected through marketing the surplus among new consumers at low prices Three results might accrue from such a procedure (1) The overproduction would be removed from the present markets, thus causing a greater gross return, (2) some revenue would be derived from the sale of the surplus, (3) new consumers would become acquainted with the product and thus educated to consume it so that the demand would continue even though prices were gradually increased

However, to sell fruit in the Orient at lower prices than in America would require a complete and radical revision of the whole sales program, the discussion of which is not within the scope of this report Nevertheless, in presenting the results of a study of marketing in Asia it is necessary to emphasize that if prices were radically reduced the entire picture would change and the possibility of increased demands become vastly greater

RELATION OF EXPORTS TO DOMESTIC PRICES

Even extensive trade promotion, backed by large funds, can not create in Asia large enough fruit markets to materially help in raising farm prices within the probable duration of the present price depression —At the present time the most desirable result that could be accomplished for the farmers of California who are producing the fruits which have ruled at a low price would be to market a sufficient volume of California fruit in Asia or elsewhere so that the price level would be moved upward in the home markets to the point of cost of production or above In order to do this it would be necessary to develop, within a short time, a demand sufficient to remove from the present markets in America and Europe considerable percentages of California's various fruit crops The so-called surplus varies for different fruits In some fruits an increase in demand of 25 per cent or more would probably be required to restore the price level prevalent at the time the trees were planted

Within the probable duration of the present price depression, and at present export prices, there does not appear to be any opportunity to develop markets in Asia of sufficient magnitude to accomplish this greatly desired result Even though a very extensive trade promotion campaign were conducted with all its attendant costs, a market can not be created for fruit at present prices in large enough volume in short enough time Since, unfortunately, our present exports to Asia are small, even an increase of several hundred per cent would not alone be sufficient to solve a surplus problem of the magnitude of that now extant in California

Surpluses in fruit production ultimately cure themselves through the coming of old age to trees and vines so that the acreage gradually decreases Surpluses are also cured through the gradual development of demand Such development may come about through the increase in the population of America and an increased per capita consumption of fruit Surpluses are also cured by lowered costs of production, and the pulling out of acreages on which costs are too high A profitable price is that which is above cost of production These costs vary from man to man and from farm to farm Those first emerge from under a surplus market who have the best land and the most skillful methods Although it is probable that low farm prices will, under present market demands and marketing methods, continue for some years, they will ultimately be restored to equilibrium through the normal action of economic forces

Trade promotion for certain California fruits in eastern Asia will accelerate the movement toward equilibrium between costs and returns, but Asiatic markets can not at prevalent prices be created quickly enough to act as a cure in the present crisis However, it must be remembered that so far as can be foreseen, these surpluses are likely to be recurrent during future years, despite our developing system of economic education Even with an adequate system of warnings and economic forecasts, human nature is likely to be the same in the future as in the past In times of relatively good prices, greatly increased plantings will probably be made These bring lower prices in their wake

FOUNDATION FOR FUTURE BUSINESS

If conducted for a considerable period of time, trade promotion might secure markets in Asia which would be of material assistance in sustaining prices in future years—Even though extensive trade promotion in Asia might not succeed, within the next five or ten years, in marketing a volume of the California crop comparable to the present surplus or that now sold in Europe, it is perfectly clear to all students of Oriental affairs that great changes are coming in Asia and that within the next quarter of a century these peoples will rise to an economic level which they have not heretofore enjoyed Furthermore, it is probable that this rise in financial security will mean the adoption of European standards to a degree not hitherto deemed possible Any extensive trade promotion for American fruit in Asia should be undertaken, not only with a view to developing the present markets but also with the object of building for the future If California is to continue to develop her fruit industry faster than the increasing population of America warrants, markets must be built abroad Such structures require long periods of time

Growers in other countries are trying by educational methods to develop the demands for their product India taxes every grower of tea on the basis of his production The funds thereby accumulated are devoted to an attempt to induce the world to drink more tea, preferably from India Extensive advertising and educational campaigns are in operation in India, America, and elsewhere It is said that the per capita consumption of tea in India has been increased 50 per cent, but that in America the campaign has not been so successful

Australia has an organization, fostered by the Government, to export the dried fruit in excess of the needs of that continent A board annually determines how much dried fruit must be exported and the price that must be charged for it to secure its sale outside the country Fruit to be shipped abroad is thus sold by a sort of pool at a lower price than that charged in Australia

In considering the possible development of American markets in Asia, it should be realized that backward countries may be expected to go through three periods of development In the first period there is a small market for European foodstuffs, as well as for other imported commodities, because the people have not yet felt the need for them and have low standards of living caused by their limited purchasing power

The second period is when, through the development of hidden resources in timber, mines, and water power, and through the use of machinery and manufacturing devices, there comes a great rise in the economic level of the people so that they have the desire for higher standards of living and the luxuries that go with them

The third period is when such a country seeks to manufacture these luxuries itself, thereby lessening the outgo to other nations Such countries usually attempt, through prohibitive tariffs and otherwise, to develop their own manufacturing and agricultural industries in order to provide a higher economic return and to improve their balance of trade

The United States has passed through the first two stages of development and is now well advanced into the third Japan is rapidly emerging from the second into the third period Most of the countries of the East, however, are still in the initial era After they pass from the first into the second development, as they are likely to do within the next quarter of a century, they will present a marked opportunity to those countries of the world that by work in advance have prepared themselves to take advantage of the opportunity Ultimately, in the dim future, these countries will, like Japan, merge into the final development wherein it becomes much more difficult than in the intermediate period to find large markets for those commodities which can be produced or manufactured within their own borders

Viewing, however, the immense masses of the population it is improbable that this last phase will be reached within calculable time for most of the areas of the Far East It is rather for the period during which the countries of Asia may be expected to develop and expand that the California fruit grower has an opportunity to occupy these markets

U. S. DEPARTMENT OF COMMERCE
R P. LAMONT, Secretary
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EUROPEAN MOTION-PICTURE INDUSTRY IN 1929

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FOREWORD

The outstanding development of the European motion-picture situation in 1929 was the advent of the sound film In practically every country sound films were exhibited during the year, and in most of them gave every evidence of duplicating the degree of popularity attained in the United States

This new condition, of course, resulted in a rather unsettled state of affairs Imports of American film into Europe amounted to 110,031,551 feet in 1929, as compared with 69,998,393 feet in 1928 European production of films was considerably less than in 1928, however Exhibitors found difficulty in obtaining enough silent films to satisfy demands, but were hesitent about installing expensive sound-synchronization equipment in their theaters until they could be sure the additional revenue would offset the expense At the end of 1929, however, there were 1,670 European houses wired for sound films, and many more planned such installations early in 1930 Most of the apparatus installed is of American origin, but European producers are turning out much equipment in that line.

New theater construction was not as great as in 1928, and many small theaters discontinued operations The trend was toward larger and more modern houses

This report is the bureau's third annual publication on the European motion-picture situation It was compiled in the motion-picture division from reports submitted by oversea representatives of the Department of Commerce The motion-picture division is in close touch with developments in the film industry throughout the world and welcomes specific inquiries from interested American firms

WILLIAM L COOPER, *Director*,
Bureau of Foreign and Domestic Commerce

MAY 1930

UROPEAN MOTION-PICTURE INDUSTRY IN 1929

INTRODUCTION

Europe found itself confronted during 1929 with great difficulties assimilating the sound film The silent film had not ceased to ovide satisfactory entertainment, and a change was consequently necessary for economic purposes In fact, sufficient headway d been made in silent films during 1928 to inspire European pro- cers to proceed during 1929 with plans for greater stability and a ore even level of production However, the suddenness with which e sound film succeeded in the United States threw the European otion-picture business into an unsettled condition from which it as only beginning to emerge at the end of 1929

Great Britain was the only European country whose motion- ture industry made any progress during the year All other untries, either through legislative difficulties, patent litigations, edit stringencies, or a caution resulting from the uncertainties of und-film entertainment, failed to keep pace with the world develop- nt in this new field of sound films

Feature-film production decreased very considerably under the ord figures of 1928, new cinema construction lagged and was not so stematic as in the immediate preceding years, progress in the wiring cinemas for the reproduction of sound films was disappointing; gislation unfavorable to foreign interests further hampered film ade, because of both the general effect of the Franco-American ntroversy and the growing European appreciation that existing easures tending to restrict film imports are not efficacious now that e sound film is a factor

One outstanding feature of the European situation was the readiness th which the British film organizations grasped the significance of e sound film as their possibility of achieving a leading place in the dustry, after a distinctly unsuccessful 1928 season, when an over- oduction of silent features was quite suddenly faced with a greatly stricted outlet as first and second run cinemas were demanding und films Another feature was the strong indication that the ssimilarity in the respective tastes generally of the American and ntinental markets for the sound film, particularly concerning the nguage question was gradually being overcome Continental m leaders are now of the opinion that not only is the sound film the tertainment of the future, but that the multilingual feature, for port purposes, is a necessity to amortization of production costs.

FILM PRODUCTION

Under conditions existing during the year, it was natural that ature-film production in Europe would suffer materially Primarily, rope lacked money for experimental purposes, its producers were compelled to await definite signs of public approval of the sound film before launching into any serious production schedule, and its exhibitors felt the necessity of biding their time before purchasing at great expense equipment for the reproduction of sound films until such time as a definite film supply was obtainable As a result, European production fell from 521 features in 1928 to 412 features in 1929, a drop of 21 per cent, while production costs declined from $24,260,000 in 1928 to $15,135,500 last year, a decrease of approximately 38 per cent

Many films were produced during 1929 with both silent and sound versions, and, in the latter case, to a lesser extent reproduced multilingually This obviously makes an exact determination of production cost impossible

The table below, based on reports from Department of Commerce offices in Europe, lists by countries the number of feature films produced during 1929, together with the estimated production cost, as compared with 1928 It will be seen that European film production continues to center in Germany, France, and Great Britain It is believed that the output of the other countries had very little, if any, first-run success outside of their country of origin

FEATURE-FILM PRODUCTION IN EUROPE

Country	1928		1929	
	Feature films produced	Estimated cost	Feature films produced	Estimated cost
Austria	23	$350,000	19	$275,000
Baltic States	1	5,000	6	14,500
Belgium	3	45,000	4	60,000
Bulgaria			4	8,000
Czechoslovakia	19	200,000	25	300,000
Denmark	6	240,000	2	70,000
Finland	4	50,000	4	40,000
France	94	3,750,000	52	2,080,000
Germany	221	11,000,000	192	8,000,000
Great Britain	95	7,610,000	40	3,200,000
Greece	3	7,500	2	6,000
Hungary	2	75,000	4	70,000
Italy	8	320,000	4	100,000
Norway	3	60,000	3	75,000
Poland	14	150,000	12	180,000
Portugal	1	4,500	2	8,000
Rumania	3	27,000	4	19,000
Spain	10	150,000	20	300,000
Sweden	8	216,000	12	325,000
Turkey			1	5,000
Miscellaneous	3	(1)		
Total	521	24,260,000	412	15,135,500

[1] No record

The following table shows the number of feature films censored during 1929 in Germany, France, and Great Britain, the origin of those reviewed in the first two, and the change from 1928

FEATURE FILMS CENSORED IN GERMANY, FRANCE, AND GREAT BRITAIN

Item	1928	1929	
		Number	Per cent change from 1928
GERMANY			
Total features	520	426	−19 90
American features	205	142	−30 90
German percentage of market	42 50	45 1	+2 60
American percentage of market	39 42	33 3	−6 39
Other foreign percentage of market	18 08	21 6	+3 52
FRANCE			
Total features	583	457	−20 50
American features	313	211	−32 04
French percentage of market	16 11	11 9	−4 21
American percentage of market	53 69	48 3	−5 39
Other foreign percentage of market	30 20	40 0	+9 98
GREAT BRITAIN			
Total features	778	758	−2 58

THEATER CONSTRUCTION

A gradual disappearance of the preponderant small-size cinemas was evident during the year, with their places being taken by considerably fewer but larger houses in localities capable of supporting such houses These were constructed purposely with a view to the exhibition of sound films, hence more intensive consideration was given to acoustics than heretofore

It is impossible to state in detail the changes in cinema construction during the year Accurate statistics have never been available, and no records seem to be kept systematically of houses eliminated entirely from business, enlarged for purposes of better commercial possibilities, or converted to cinemas from other types Neither is it possible to determine the net changes in the total seating capacity. However, it is possible to estimate with more accuracy the number of new cinemas that were constructed during 1929 As in 1928, Great Britain was far ahead of all other countries in this respect Cinema expansion continued in Germany, too, while France made some little progress

The following table gives the estimated number of new cinemas constructed While only a relatively small decrease is revealed for 1929, it must be borne in mind that this was due chiefly to the favorable British situation, where cinema changes were hastened on account of the popularity of the sound film The Continental state of affairs was not nearly so encouraging.

ESTIMATED CONSTRUCTION OF MOTION-PICTURE THEATERS IN EUROPE IN 1929

Country	1928		1929	
	New cinemas	Seats added	New cinemas	Seats added
Austria	3	3,200		-
Baltic States	2	2,300	4	3 250
Belgium	10	14,000	10	7,500
Bulgaria	-	-	1	450
Czechoslovakia	40	53,000	50	22,000
Denmark	2	2 500	-	-
Finland	15	6 000	3	1,800
France	35	30,000	20	20 000
Germany	157	105 000	123	80 000
Great Britain	70	90 000	171	200,000
Greece		-	1	450
Hungary	8	9,000	-	
Italy	35	50,000	1	4 500
Netherlands	2	2 550	7	4,100
Norway	10	70 000	1	1 400
Poland	50	15,000	-	-
Portugal	1	1,500	6	5 100
Rumania	2	1,700	4	3,000
Spain	11	4 000	10	15,000
Sweden	12	7 500	7	4,000
Switzerland	18	15,000	10	6 000
Turkey	-	-	4	3 000
Yugoslavia	-	-	6	2 000
Total	484	482,250	439	583 550

MARKET FOR AMERICAN FILMS

Aside from the innumerable petty problems involved in the distribution of films, censorship, music rights, and patent litigation, the chief problems of the American film industry in Europe were the language barriers and legislation inimical to the film importer The latter problem is probably the more important, inasmuch as it is impossible to foresee market conditions when these indefinite restrictions remain, just as it is extremely hazardous to make financial investments in an attempt to strengthen demand for motion pictures In some instances, it is felt that existing film restrictions have been invoked in order to compel, or at least attract, American investments in local film units In any event, American investments in Europe on film projects, especially on the Continent, are a hazard so long as the film quota or contingent system, with its susceptibility of alteration to the needs of local industry remains a factor

There is very little doubt in the minds of European film leaders that the United States will eventually be able to furnish enough satisfactory sound films for European audiences, though the question of production cost of foreign-language films in its relation to possible yield induces the thought that America will be unable to compete with European production This, however, resolves itself into a matter of bookkeeping and experiment Attractive play-dates will continue gradually to expand, and as new distribution policies attended by reduced overhead expenses enter into the situation, these should contribute to profit in the continental market

It seems to be an accepted fact that little progress can be made in the immediate future in the small European markets, on account of the language difficulty In the past, these markets have offered only small markets, at best, for American feature films Now, it appears that the few wired cinemas in these countries will provide more lucrative returns for sound films than previously was the case with silent features, provided that sound films are offered (*a*) in the country's second language, (*b*) as synchronized with sound effects without dialogue, or (*c*) with a little foreign dialogue and domestic subtitles superimposed on the film

The question of the so-called "medium" markets, which are in themselves desirable, but which for the time being do not appear to be able to support talking films in their own language, is quite serious They appear already to be tiring of films in foreign dialogue and are clamoring for a change

While it is too early to prepare a guide covering present-day distribution, in view of indefinite plans of the various world production centers, the following division of countries by types of film that serve the best purpose is submitted.

Group I, which can be supplied with films in one of the leading languages (English, Spanish, German, and French) are Great Britain, Germany, France, Belgium (French), Switzerland (French and German), Spain, and Austria (German)

Group II, whose territory is too small for economic production of films in the domestic language and where the exhibition of films in the second language is risky, are Sweden, Norway, Denmark, Italy, Czechoslovakia, Hungary, and Poland

Group III, small countries where films should be released in the second language (indicated in parentheses) that are merely sound synchronized or have native titles superimposed on the screen, are the Netherlands (German), Portugal (Spanish), Turkey (French), Greece (French), Bulgaria (French or German), Rumania (French), Yugoslavia (German), the Baltic States (German), and Finland (German)

In the above consideration the second language was picked from the four languages that seem to be preferred in the production of multilingual films It should be borne in mind, however, that in some instances, the second language, though readily understood, is unpopular on account of national sentiment

Specifically, the outstanding obstacles of the American trade during 1929 were the patent litigation in Germany and the 6-month recess in sales activities in France on account of the Franco-American film-quota controversy Both of these instances caused unfavorable indirect reactions in other channels

Patent litigation occurred in several different countries, but without serious effect or annoyance to the American trade except in the case of Germany There the German sound-film interests secured a court injunction against the use of American reproducing equipment alleged to infringe German basic patents, and later obtained a court decision sustaining the original petition, which, pending an appeal to the higher court, seems to preclude the possibility, barring an arrangement outside of the courts, of the installation of adequate American sound-film equipment in German theaters This situation caused reverberations in other directions German cinema owners became hesitant about wiring their houses in view of the closed doors to American equipment, and the apparent necessity of purchasing German-made equipment or none at all failed to hurry them, since there was a great lack of sound-films on the market and most of the American producers were refusing to release their sound films for reproduction on German-made apparatus Negotiations are now under way between the respective electrical companies involved for a settlement out of court

In the Franco-American dispute, American subsidiary companies in France found it necessary to suspend sales operations from the 1st of April to the early part of September because the French Government proposed to raise the existing film quota from 7 to 1 to 3 to 1 after October 1 As a consequence, American business dropped very considerably from the 1928 volume

SOUND FILMS

Although slow in starting, the principal European producing countries (Great Britain, Germany, and France) show, even in their present small output, a standard in sound films which compares very favorably with their former production of silent films The first issues, naturally, were very crude, but subsequent features indicated an ability to overcome technical faults previously apparent Although much depends on the development of directing technique, it is believed that European producers' sound films with dialogue will more nearly suit popular tastes of European audiences than their silent films did Unquestionably, the idiomatic expressions and subtle humor contained in the dialogue of domestically made European feature films will be more appealing to the cinema-going public than those of foreign manufacture

It is evident that the European market for recording equipment was limited during the year to three major systems, two American and the Tobis-Klangfilm of Germany. All other recorders appeared to be inadequate

The high cost of these instruments has necessarily retarded their sales in Europe, yet at the end of 1929, 22 different European studios were wired for the recording of sound films and 48 recording sets were employed Of these, 25 were of American manufacture, as shown by the following table

EUROPEAN MOTION-PICTURE STUDIOS EQUIPPED FOR RECORDING SOUND

[As of Dec 31, 1929]

Country	Studios wired	American recorders	Foreign recorders	Total recorders
Great Britain	10	14	6	20
France	5	9	9	18
Germany	2		5	5
Italy	1	1		1
Spain	1		1	1
Denmark	1		1	1
Poland	1	1		1
Austria	1		1	1
Total	22	25	23	48

In addition, there are in Europe several sound-equipped trucks that are used for location work Some of these are of American manufacture Some American production companies have their own sound trucks in Europe engaged in "shooting" sound news reels

The European market is overcrowded with different types of apparatus for the reproduction of sound films. The majority of these, however, may be classified as distinctly inferior and will not be able to stand the heavy competition of the few leading types Lack of servicing alone will limit their market, and many installations of this inferior type will have to be scrapped in favor of more substantial systems It can not be denied that the present sales prices of the leading makes are altogether too high for the numerous small cinema proprietors, and consequently these exhibitors will be obliged to disappear from the trade within a year or two unless the cost of the leading types of reproducers is reduced or satisfactory small equipments within their purchasing power become available

Available statistics show that 1,670 European theaters were wired for the reproduction of sound films as of December 31, 1929, of these, 936 involved American apparatus, and 734 foreign The following table describes this situation by countries

EUROPEAN THEATERS EQUIPPED FOR SOUND-FILM EXHIBITION

(As of December 31, 1929)

Country	Cinemas wired	American sets installed	Foreign sets installed	Country	Cinemas wired	American sets installed	Foreign sets installed
Austria	23	15	8	Netherlands	57	5	52
Baltic States	3		3	Norway	7	5	2
Belgium	11	11		Poland	8	8	
Bulgaria				Portugal			
Czechoslovakia	14	8	6	Rumania	3	2	1
Denmark	18	15	3	Spain	15	11	4
Finland	4	4		Sweden	45	16	29
France	166	92	74	Switzerland	10	8	2
Germany	223		223	Turkey	2	2	
Great Britain	980	688	292	Yugoslavia	13	11	2
Greece	7	4	3				
Hungary	10	6	4	Total	1,670	936	734
Italy	51	25	26				

CHANGES IN LEGISLATION

The sound film seems to have dislocated the basis of most of the serious European legislative restrictions on film imports Though the British films act seems adjustable to new conditions, the Continental regulations are not Either the countries involved found it very difficult to turn out sufficient product to maintain their quotas, or, where a particular law or regulation restricts imports, insufficient foreign films were available to meet domestic demand Yet changes during 1929 were inconsequential

Great Britain is entering upon the third year of its film control as prescribed in the law

Germany, unable to cope with the present state of affairs, decided to maintain its status quo as an experiment, but with the reservation that, if necessary, special provisions would be issued in connection with the importation of sound films

After negotiations extending over six months, already mentioned, France extended the ratio of seven imported films to one French film until October 1, 1930, with a possibility of a further extension of one year

Hungary instituted a change in its decree, which, in addition to a slightly larger tax for merchandising by film importers, also affects the short sound film

Austria widened its film quota just before the new year to permit of some additional licenses for necessary features for exhibitor demand

The liberal regulations of Italy continued without change, though the Government did issue an order banning the exhibition of sound films with songs and dialogue in a foreign tongue The prohibition relating to songs has since been lifted

The entertainment-tax scale continues in Poland to the extent of practically destroying the market for foreign films Increased taxation on amusements and a special censor tax of 2 lei per meter further depressed the Rumanian situation

The Portuguese regulation prohibiting the use of foreign languages in titles is understood also to become effective as regards dialogue in foreign languages, although no cinemas were wired for the reproduction of sound films during the year

From the American point of view, continued success in Europe while affairs are being adjusted to new conditions would seem to depend on the continuance of the British appreciation of American sound films, a sufficient supply of sound films adaptable to the ready Continental market, the clarification of the patent litigation which has practically closed the German market to our product, the materialization of the plans of leading American sound-equipment manufacturing companies in the wiring of European cinemas, the gradual liberalization of European quota restrictions, and the normal growth of fair-sized cinemas

OUTLOOK OF EUROPEAN MOTION-PICTURE INDUSTRY

In view of the rapidity of change in the film industry, it is quite impossible to indulge in detailed prophecy for 1930 Intensive research being made in technical developments foreshadows great progress, particularly in the production and servicing of sound recording and reproducing equipment The rationalization of the European industry obviously requires both the elimination of the weaker production companies and the addition of adequate cinemas in key cities The coming of sound films has, of course, complicated the entire European film situation, but with energetic European efforts being made to attract new capital and effect important mergers, there seems every prospect that this new development will prove helpful rather than harmful to European interests

It is naturally supposed that the future movement of American films will be considerably smaller than during the silent-film days, since fewer units of American output will be adaptable to European tastes and since also play-dates will be very much fewer through the small number of wired theaters, together with the extended runs of sound films in first and second run houses that are wired This smaller movement will, however, greatly reduce the number of films that have formerly been merchandized in Europe without profit

In the matter of restrictive legislation, of which the American trade is the chief object, it appears probable that this will continue in several countries as a protection to the local industry, although there are signs of increasingly strong protests on the part of the public, as well as the exhibitors.

Viewing the outlook as a whole, 1930 gives promise of raising the film business to a new peak of prosperity in Europe The year will not be without many problems and difficulties, but its general effect should be one of distinct advancement From the American standpoint, Europe should prove to be a distinctly better though a highly competitive market

GREAT BRITAIN

By Martin H Kennedy, American Trade Commissioner, London

The British film industry during 1929 suffered from several industrial reverses, and it is confronted at the threshold of 1930 by many momentous problems

Prior to 1927, owing to the inroads of foreign films, the film industry of Great Britain reached a crisis which was met by Parliamentary intervention in the form of the quota act Under the stimulus of this act the beginning of 1929 found confidence in the future of the film industry restored, and it was claimed that a market for British films was assured

As a result of this protective measure, numerous British film companies were organized and public subscriptions to their flotations reached huge totals (figures placed by some at £35,000,000 and £40,000,000) Many new studios were erected, and numerous silent films were produced So great were the activities in the industry, however, that it was generally predicted that large quantities of silent films beyond the requirements of the quota act would result At that time several thousands of cinemas throughout Great Britain were doing good business

In the meantime the British industry did not realize the rapidity of the progress being made by the sound film and was not fully prepared for its invasion of the British market As anticipated, 1929 closed with a large surplus stock of silent films and a demand for sound pictures which the British industry was not prepared to supply

A large number of companies whose activities were devoted to the production of silent films were not financially able to change over to sound production and were forced into liquidation Several thousand cinemas in Great Britain which find their receipts diminishing because of the demand for sound pictures are confronted with the necessity of installing sound equipment

In face of this, the news of the rapid development of the wide screen and color has been sufficient to disrupt plans for the future, as it is argued that difficulties of financial installations for sound in the cinemas fitted only for silent films are considerable, and the thought that the coming of the wide screen will necessitate remodeling cinemas and the installation of entirely new projection apparatus is so disquieting that the consensus of the cinema press and industry is that concerted action is necessary to bring about a postponement of the introduction of the wide screen until such time as the industry has recovered from its disruption resulting from the invasion of sound, and that a powerful governing body to control, advise, and direct the industry under the direction of a competent leader should be organized in the meantime

THEATERS

It is estimated that 171 theaters were constructed in England during 1929 An average of about 1,200 new seats was installed in the new theaters erected during the year, making a total added seating capacity of approximately 200,000 This compares with approximately 70 new theaters in 1928 with an added seating capacity of about 90,000

It has been roughly estimated that about 250 theaters were reconstructed during the year in Great Britain In considering this question, however, it has been found difficult to determine the meaning or limit of the term "reconstruction" Reconstruction is so general and varied and between such wide limits that no accurate idea can be given of the actual number of theaters in which the changes can be dignified as reconstruction There are, furthermore, no records now available by which it can be determined how many new seats were added by reconstruction

During the past year about 980 cinemas were supplied with sound equipment Of this number 693 have American equipment, 177 British Talking Pictures, 21 Edibell, 20 Electrocord, 18 Melotone, 14 Filmophone, 13 Syntok, 4 each New Era and Celebritone, 3 each Klangfilm (German) and Classitone, 2 each Naturetone and Syncro, and 1 each Brooks, Clarion, Coronel, Majestone, Marshalls, and Own Make

PRODUCTION OF FILMS

Approximately 40 feature films were actually started during the year Silent versions were made of all of these and, in addition, about 35 of them were eventually synchronized in one manner or another This compares with a 1928 production of 95 films

The best opinion seems to indicate that the cost of the average silent film ranges between £5,000 and £12,000 This is somewhat below the cost of the sound films, as it is figured that the average setting for the silent film, cost of artists, etc , are less than the cost connected with the sound film

In view of the fact that sound films are produced on a more elaborate scale than the silent films, the average cost of a sound film is considered to be from £12,000 to £20,000 It has been estimated that such sound pictures as Blackmail, High Treasons, and Atlantic cost £24,000, £30,000, and £40,000, respectively

Statistics collected from English studios and published in an English film trade magazine show that when a picture costs £15,000 the amounts paid are approximately as follows

To actors, supers, and staff	£3, 000
To director	1, 500
To his assistants	1 750
To the scenarist	1, 000
To the photographers and operators	1, 000

The 40 films referred to were produced by the following companies

The British International Pictures (Ltd)	21
The Gaumont Co	5
Gainsborough Pictures	6
New Era Pictures	1
British Instructional Pictures	1
British and Dominion Films Corporation	4
Welsh Pearson-Elder Films	2

There is little evidence of great progress being made in short sound subjects. The British International Pictures is said to be making 1 a week, while Gaumont is accredited with 2 per week The former, however, has plans to make about 12 pictures, while the latter has plans to make about 8 Gainsborough and British Sound Films are contributing to the number of short sound films at irregular intervals, but no definite report as to their production is at present available

The cinema press is authority for the statement that at the present time there is little real competition in the sound short field being encountered from the Continent, but that the foreign market has been increased by American short comedies some 300 per cent, and that the volume is increasing rapidly It is believed that the possibility of further business is brighter than it has been, particularly as shorts seem to lend themselves much more readily than lengthy productions to the multilingual plans and to the employment of foreign talent

Ten studios thus far have been equipped for sound-film production. Five of the studios are equipped with American recording apparatus.

DISTRIBUTION

According to the Kinematograph Year Book, there were actually released in the United Kingdom during 1929, 663 feature films, of which 495 were American, 87 English, 60 German, and 16 French. Of the American films released, 53 were sound films, of which 36 also had silent versions The following table contains an analysis of this situation

FILMS RELEASED IN THE UNITED KINGDOM IN 1929

Month	American	English	German	French	Other	Total
January	34	11	3	4		52
February	39	6	8	2	1	56
March	31	7	5		1	44
April	39	7	6	2		54
May	46	7	4	1	1	59
June	29	4	3	1		37
July	43	3	6	1		53
August	34	5	2	1	[2] 1	43
September	46	8	5			59
October	[4] 48	9	1	2	[5] 1	61
November	[6] 56	10	7	1		74
December	50	10	10	1		71
Total	[8] 495	87	60	16	5	663

[1] 3 of these were silent versions of sound films

[2] A film entitled "The Romance of Runnibede," produced in Australia by an Australian company.

[3] 7 were silent versions of sound films

[4] 6 were silent versions of sound films

[5] A film entitled "Shiraz" produced in India by an Indian company

[6] 11 were silent versions of sound films

9 were silent versions of sound films

[8] Including 53 sound films

According to these figures, the American share of the market for 1929 was 74 66 per cent as against 71 72 per cent in 1928, when 558 out of a total of 778 films distributed in the United Kingdom were American The British share of the market also rose, from 12 21 per cent in 1928 to 13 13 per cent in 1929, while the other foreign participation declined from 16 07 per cent to 12 21 per cent

The opinion of the local press and writers on cinema subjects, as expressed by one of their number, is in substance as follows

> Owing to the advent of the sound films, there was more or less of an upheaval in the British film industry, and, as was the case in America when talking pictures arrived, chaos ensued; but after the first few months, when it became evident that the public was taking to this new form of entertainment, there gradually came about a more organized state of affairs
>
> British film companies suffered by reason of the fact that they were almost unprepared and had a number of silent films, upon which a great deal of money had been spent, relegated practically to their shelves Those exhibitors who were fortunate enough to get their houses wired immediately showed an increase in revenues, and their example was very quickly copied by others

> The British public's reaction to sound films was exactly the same as that observed in America They probably were not exactly tired of the silent film, but interest was undoubtedly waning
>
> The new type of entertainment has acted as a tonic, and there is not the slightest shadow of doubt that it is "going strong," not so much on the novelty value but on general entertainment value

That American prestige held up remarkably well is evidenced by the fact that, with the exception of some half-dozen British sound pictures, the majority of the pictures shown were American, and it is generally conceded that the type of American pictures shown has added greatly to the prestige of the American film producer

Exhibitors are definitely impressed with the necessity of making sound installation and believe that sooner or later they must provide for sound films This situation confronts about 3,000 exhibitors whose theaters are not yet wired, but it is thought that within a year or so almost all cinemas will have some sort of sound apparatus

Plans for production in 1930 are still somewhat indefinite, but companies like the British International Pictures, Gainsborough, Gaumont, British and Dominion Film Corporation, Welsh Pearson Elder Films, New Era, Associated Sound Films, and one or two small concerns all have a number of pictures scheduled for production, and although no accurate estimate can be made, production plans for 1930 provide for about 75 pictures

The only legislation inimical to the interests of American films in prospect is that which has been suggested in several quarters which has to do with a possible amendment to the film quota act, to provide for a 25 per cent quota of British films distributed It is claimed by those who are sponsoring the amendment that the quota act, which was designed to foster and stimulate British production, in reality has the opposite effect It is argued that the minimum cost of a picture should be £15,000, and that this would have the effect of compelling the superior product, on the theory that distributing concerns would find it a profitless task to attempt to carry 25 per cent of inferior films and would insist upon the higher grade of production There is a growing feeling, however, that the quota act is an artificial protection to the industry and therefore uneconomic, and that any amendment to the act will not aid the industry but accentuate the difficulties it is now experiencing, and that the chances of any amendments to the act are remote

FRANCE

By George R. Canty, American Trade Commissioner, Paris

During 1929, depression in the French film industry reached the lowest level in a decade Chief factors underlying this state of affairs were the abrupt change from silent to sound-films and the protracted film-quota controversy which kept American films out of France for six months Domestic production of feature films slumped 44 6 per cent under 1928 figures, total motion-picture consumption fell 25 per cent, the American supply of feature films dropped 32 6 per cent, while German films continued their steady increase since 1924 with a 6 5 per cent jump

The supply of feature films censored for the French market since 1924, by countries of origin, is shown in the following table

FEATURE MOTION-PICTURE FILMS CENSORED IN FRANCE

Country of origin	1924	1925	1926	1927	1928	1929
France	68	73	55	74	94	52
Semi-French[1]				7	2	
United States	589	577	444	368	313	211
Germany	20	29	33	91	122	130
Italy	9	13	14	10	7	3
England		7	2	8	23	24
Austria	6	2	4	2	1	
Russia	1		1	10	2	9
Denmark			6	5	1	3
Sweden		2	5	2	4	1
Spain		1		2	4	
Belgium			1		3	
Poland					2	1
Czechoslovakia					1	1
Ukraine					2	
China					2	
India				1		
Armenia				1		1
Miscellaneous				1		2
Total	693	704	565	581	583	438

[1] Pictures taken on French territory and under French direction, but with not less than 50 per cent or more than 75 per cent of the leading roles filled by French artists.

The table shows a market-consumption decline of 145 features, or 25 per cent, from 1928, a condition which was due chiefly to fewer exhibition dates being available on account of longer runs of sound films. The total market supply for the year, however, is the lowest since 1919.

The decline was absorbed fully by French and American producers, since other gains or losses were relatively insignificant. French production declined 44.6 per cent, and the American supply decreased 32.6 per cent. German producers continued their progress since 1924, with an increase of 6.5 per cent. The British supply held its 1928 prestige, despite the lowered consumption of feature films.

The share of the French feature-film market supplied by the leading contributors in 1929 as compared with 1928 is shown in the following table:

SHARE OF FRENCH FEATURE-FILM MARKET ACQUIRED BY LEADING SUPPLIERS

[In per cent]

Country	1928	1929	
		Share	Change from 1928
United States	53.7	48.3	−5.4
Germany	20.9	29.7	+8.8
France	16.1	11.9	−4.2
England	4	5.3	+1.3
Other countries	5.3	4.8	−0.5

The French loss is ascribed to difficulties encountered in readjusting production to sound-film output and to caution in silent-film output in view of uncertain demand. The American loss is due entirely to nonparticipation in the French market from March 30 to September 25, when the quota controversy was being discussed. The German and British gains were due to unexpected demands for feature films while American features were off the market and not to any material improvement in quality or popularity.

DOMESTIC PRODUCTION

Domestic production by companies in 1929 as compared with 1928 is brought out in the following table

PRODUCTION OF FEATURE MOTION PICTURES IN FRANCE

Producer	1928	1929	Producer	1928	1929
Franco Film	8	8	Mercanton		1
Cineromans	9	7	Louis Nalpas		1
Aubert	9	[1] 4	G C P C		1
Albatros Armor	4	4	Distributeurs Reunis		1
De Venloo	4	[2] 3	De Merly	4	1
Pathé Natan		[3] 2	Sofar	1	1
Erka	2	2	Ste Générale des Films		1
Isis Film	1	2	Petit	3	1
Films Celebres	2	2	Mappemonde		1
Loca Films		2	Etoile Film	1	1
Nicea Films	1	2	Vandal et Delac		1
Braunberger	2	[4] 2			
Ste Films Historiques		1	Total	51	52

[1] Aubert produced 1 sound film, La Collier de la Reine

[2] Tobis process De Venloo produced 1 sound film, La Nuit est a Nous, in England under an American process

[3] Pathé Natan produced a sound film, Les Trois Masques, in Germany under Tobis process

[4] Braunberger produced a sound film, La Route est Belle, in England under an American process

No production costs are available, but it is generally estimated that the average was $40,000 a picture Many productions, to be sure, cost considerably less than this amount, but a few so-called "supers," on the other hand, attained very high amounts This would indicate a total production cost of slightly more than $2,000,000, as compared with $3,750,000 during 1928

DISTRIBUTION

Distribution of feature films during 1929, segregated by companies and countries of origin of the films involved, is detailed in the following table

DISTRIBUTION OF MOTION-PICTURE FILMS IN FRANCE IN 1929

Distributors	American	German	French	English	Russian	Other
American companies	133		2			1
Aubert-Franco-Film	11	11	13	3	2	
Alliance-Cine European		10				
Armos-Albatross		1	4			
De Venloo		2	3	1		
Distributeurs Reunis	7	5	1			
Erka	17		2			
Film Elite	1	4				3
Grands Spect Cinema	6	6			1	
Lauzin	3	3				
Loca Film		9	2			1
Luna Film		4				
Mappemonde		3	1			
Meric	9					
Metropole		7		1		
Omega		5				1
Cine-Romans	8	3	7	1		
Pax-Film		2		1	4	
Seyta		7				
Sofar Film		11	1			1
Super Film		10				1
Victoria Film				12		
Wilton Brockliss	10	1				
Other	6	26	16	5	2	4
Total	211	130	52	24	9	12

Although 211 American features were distributed during 1929 as compared with 313 during the previous year, only 133 were handled by American companies maintaining their own subsidiary organizations in France This latter figure compares with 231 for 1928, a loss of 42 4 per cent, which resulted from American inactivity during the quota negotiations The remaining 78 American films distributed in France during 1929, as compared with 82 during 1928, were handled by independent agencies Incidentally, American exchanges in France distributed but 3 foreign films during 1929 as against 17 during 1928

PRODUCTION OF SOUND FILMS

Much is being published concerning new recording processes in France, but very few of the equipments have actually been manufactured

The Gaumont company has equipped two of its three Paris studios with Gaumont-Peterson-Paulsen sound recorders The Tobis studio, at Epernay, has 3 Klangfilm installations The former Cineromans studios at Joinville, now controlled by Pathé Natan, have installed 7 American apparatus and 1 Klangfilm The Haik studio at Courbevoie has 3 Cinevox Haik installations The Natan studio, rue Francoeur, Paris, has 2 American truck recorders In addition, there are 4 other studios contemplating the installation of sound-recording equipment

It is evident that it will take many months before France will be able to produce even satisfactory dialogue films beyond the Gaumont, Tobis, and Pathé-Natan studios (Joinville and Paris) Therefore, the majority of the sound versions of French feature films will undoubtedly have to be produced in Germany and England in order to meet exhibitor demand during 1930 It should be borne in mind that but four "talkies" were turned out by French companies during 1929, and three of these were produced outside of France

EXHIBITION OF SOUND FILMS

Many different types of reproduction apparatus are said to be available in France, 17 distinct types are announced as on the market exclusive of American makes It is quite probable that this number includes several on which prompt delivery of orders can not be made

The installation of reproducing equipment in French cinemas during 1929 was rather slow, partly because of the scarcity of sound films, already mentioned, and partly because of a general tightness of money and the great predominance of small houses that have been unable to shoulder the expenses of available reproducing equipment It is this predominance that causes the general feeling among reliable sources that the French film situation will continue unsettled during 1930, but it is felt generally that the larger wired theaters will enjoy a successful year

As of December 31, 1929, 166 theaters were wired for the reproduction of sound films American equipment is used in 92 of them, Ideal Sonore, Gaumont, in 10, Tobis-Klangfilm in 1, Melovox in 18, and Sonovision (Gerardot) in 45 In addition, it is understood that 11 American reproducers are installed in studios, exchanges, etc

These figures do not take into account the small theaters which have been equipped with so-called "bootleg" installations, since they are really noncompetitive with American equipment and will very probably be scrapped if and when the houses involved can afford adequate equipment

CINEMA CONSTRUCTION

During 1929 new cinema construction in France lagged considerably as compared with former years It is estimated that 20 new houses made their appearance, adding nearly 20,000 seats to the country's capacity The following list shows their names, location, and seating capacity

	Seating capacity
Cinema du Grand Hotel, Ste Marie Aux Mines, Strasbourg	600
Cinema du Palace, Bettembourg, Strasbourg	400
Moulin Rouge, Paris Plage (Pas de Calais), Lille	400
Le Normandy, Paris Plage (Pas de Calais), Lille	500
Le Familia, Rousier (Pas de Calais), Lille	400
Le Casino, Arras (Pas de Calais), Lille	1,000
De Grenay, Grenay (Pas de Calais), Lille	700
Le Cameo, Estaires (Nord), Lille	800
Le Casino, St Quentin (Aisne), Lille	1,000
Le Palace, Charleville (Ardennes), Lille	700
Eden, Rheims (Marne), Lille	750
Gallia Palace, Agen, Bordeaux	900
Gallia Palace, La Rochelle, Bordeaux	900
Theatre Eldorado, Lyon (Rhone), Lyon	1,500
Le Capitole, Algiers	1,800
Le Rialto, Philippeville, Algiers	1,200
L'Empire, Algiers	3,500
Cinema Magnan, Nice, Marseille	600
Ocine, Ste Marguerite, Marseille	600
Cinema Marceau, Courbevoie (Seine), Paris	1,059

The Eldorada, at Lyon, is a conversion to motion pictures, and the Capitole, at Algiers, had not been opened at the end of 1929

LEGISLATION

During the early part of 1929 it became quite apparent that the French quota restrictions were inefficacious, and that the domestic market was overflooded with censor licenses In other words, licenses had little or no market value because of the excess of supply over demand The Chambre Syndicale de la Cinematographie Française, the organized French film trade, therefore recommended to the governmental Film Control Commission that the quota for the following film release year, commencing October 1, 1929, be tightened from the award of seven of these licenses for each domestic feature film produced to 3 to 1 This obviously would have the effect of cutting down the number of available licenses to be used against the importation of foreign features and should increase their worth to French owners

These recommendations were made just at the time when American exchange managers were preparing their plans for the coming release season, and when they were getting ready to send their salesmen throughout France and to hold trade shows in Paris of their 1929-30 product

Fearful of the adoption of the chamber's recommendations and consequently of being unable to estimate the number of licenses which would be available on the market for the 1929-30 season, especially since it was impossible to forecast the quantity of French feature film production with the advent of sound, the American exchanges decided on March 30, 1929, to make no more contracts for the release of their films until such time as the recommendations of the chamber were settled and the situation clarified This involved the withdrawal of salesmen and the cancellation of trade shows In addition, the American wiring companies decided it was futile to attempt to sell recording and reproducing equipment with no American sound films on the market, so they, too, decided to remain out of the market until some settlement was reached

After six months of controversy, during which time many different plans for the coming release season seemed imminent of adoption, the governmental control commission on September 19 sanctioned with the approval of the Undersecretary of State for Fine Arts, an agreement between the president of the Chambre Syndicale and the representative of the American organized industry to maintain a status quo of 7 to 1 until October 1, 1930, or, if necessary, until October 1, 1931, if an accord had not been reached between the two parties involved by May 1, 1930 During this extended period the Chambre Syndicale plans to evolve, with the cooperation of the Government, some new system of protection to the native industry which does not savor of the present contingent system

TRENDS OF THE INDUSTRY

The morale of the French film industry is low on account of the continuation of burdensome entertainment taxes Naturally, with this handicap, it is difficult to obtain funds to initiate a concerted movement to keep pace with world sound-film developments The vast majority of the French motion-picture theaters have a capacity of less than 500 seats each, and it is a serious question whether most of them will ever be in position to reproduce sound films On the other hand, just where they will find, after next year, sufficient silent films to fill their play dates profitably is also a serious question

The leading motion-picture theaters, however, are rapidly being wired with substantial reproducing equipment Actually, the progress made in 1929 in this direction was not good, as explained previously, but already there are indications that the country's film leaders are generally "sold" on sound films

During the latter part of 1929 the French industry came closest to an alleviation of the entertainment taxes This is an indication that the forces favorable to this movement are getting stronger, and that the Government gradually is seeing the situation from the viewpoint of the exhibitor Trade magazines are continuing their energetic efforts for a general reduction of taxes

During 1929 there was a general tendency toward much-needed consolidation of leading companies The potent Cineromans production company of Jean Sapene, heretofore the recognized leader of the French industry, was absorbed by the new Pathé-Natan concern, which will confine its production activities to the Cineromans studios at Joinville and the Natan studio on the rue Francoeur, Paris In addition, this company has developed the strongest cinema chain in France by securing control over the cinemas of the O P C L circuit, the Omnia theaters, and the Marivaux first-run houses on the Paris boulevards The Pathé-Natan company now controls some 60 houses The second largest cinema chain in France is the

Aubert-Franco film group This concern is composed of about 40 houses that include the Aubert chain, the Franco film chain, and the Gaumont houses A smaller chain is a group of nine motion-picture theaters throughout France controlled by an American company There are several small chains in France, but these do not include more than eight or nine cinemas at the most In the aggregate, however, they will play a prominent part in film distribution if and when their houses become wired for sound films Obviously, the purpose of these cinema chains is exhibitor-buying power

As time passes, it is expected that there will develop many joint production companies for the turning out of dialogue films in different languages Already signs point to the formation of Franco-German companies to supply the French and German markets with different versions of the same film, and it is generally accepted that this type of production will soon involve Spanish versions to supply the very wide market for Spanish dialogue films Italian versions also offer some possibilities to the French producers, it is claimed

With such an unsettled state of affairs, it is difficult to forecast accurately 1930 results As previously stated, substantial progress should be made in the wiring of theaters, and those houses wired with adequate equipment should enjoy unprecedented success Available silent films will command considerably higher rentals than heretofore, owing to the probable small supply of this type of film and the great number of unwired houses requiring it On the other hand, unwired-cinema owners face a situation that should induce them to wire their theaters or to withdraw from the trade

GERMANY

By Douglas Miller, Assistant Commercial Attaché, Berlin, and George R Canty, American Trade Commissioner, Paris

The delay in settling the patent controversy between German and American electrical concerns is having a stagnating effect upon film conditions in Germany Obviously, the German industry is falling far behind world progress in sound-film developments, and, as a consequence, silent and sound film exhibitor demand are so disproportionate, that market conditions are in a state of flux

German first and second run cinemas are but slowly being wired with German reproduction equipment, the patent controversy precluding sales of American equipment On the other hand, unwired houses are in so great a majority in Germany that a supply of quality silent films would seem to be necessary for the coming year if profitable demand is to be met This situation would seem to affect the first and second run houses more than the others, principally because of the lack of sound films and because provincial houses are now receiving films which were arranged for during the past two years, thus making their bookings secure for some little time to come

German wired theaters are finding it difficult to secure sound films With one exception the American companies are not releasing their sound product, domestic sound product is slow in making its appearance, and other foreign sound films are hardly yet marketable

The German market is thus restricted to silent features However, there is a distinct dearth of quality silent films The Americans have very few of these available, while the German and other product seems to be inferior and are not much in demand

The German situation continues peculiar Many American successful silent films, a talkie made in New York in the German tongue and featuring recognized German actors, a doubled version in German of an American all-talkie, and several costly domestic productions, have proved dismal failures, while on the other hand, certain cheap domestically made silent features have attained exceedingly great financial returns

The consensus among the American film leaders in Germany is that the silent film will have no profitable future once the patent troubles are settled and that its demand now is merely due to the inability of exhibitors to make satisfactory headway in the installation of reproduction sets, together with the exclusion of American features recorded with American processes The gradual technical improvement shown in the few German-made films so far exhibited, using Tobis Klangfilm equipment, is a sign that the future German sound-film output will stand competition from foreign sources, at least in its own and neighboring markets The American problem, therefore, will be to furnish a superior product, which should be solved in part by the successful use of color in films

THEATER CONSTRUCTION

There were 123 motion-picture theaters (exclusive of reconstructions or renovations) with approximately 80,000 seats built in Germany during 1929, as compared with 157 theaters with 105,000 seats in the previous year This slackening of cinema construction is due to a glut of small-sized cinemas holding favorable sites in many of the larger German cities Of these 123 new theaters, 6 have a seating capacity of 2,000 or more, these being the Lichtburg and Stella Palast in Berlin, the Emelka Palast in Dortmund, the Thalia in Elberfeld, the Ufa Palast in Hamburg, and the Capitol in Cologne Five have a seating capacity of 1,500 or more, the Eisenhof Lichtspiele in Aachen, the Luxor Palast in Chemnitz, the Schauburg in Gelsenkirchen-Buer, the Schauburg in Hamburg, and the Ufa Palast in Stettin In addition, 27 have a seating capacity of between 1,000 and 1,500, 6 between 750 and 1,000, and the rest under 750

SOUND-FILM EXHIBITION

According to a German trade publication, only 223 cinemas in Germany had been wired at the end of 1929 for the reproduction of sound films This represents but 4 per cent of the cinemas in the country and only 10 5 per cent of the number of daily operating houses

Quite naturally, the number and proportion of sound-film cinemas vary in the different German districts For example, eastern Germany possesses the largest number of wired cinemas, with 58, while northern Germany boasts of the highest proportion of such houses, with 13 per cent In central Germany, which has a total of 453 cimenas, the ratio of wired houses is lower than in any other part of the country This is probably due to the fact that most of the theaters there are small ones which can not afford to gamble on the purchase and amortization of the sound apparatus now on the market As the size and seating capacity of a cinema is an important factor in the purchase of this expensive installation, it is interesting to note that of the 714 theaters in Germany seating less than 300, only 9, or 1.2 per cent, are wired. Of the 678 with 300 to 500 seats, 32, or 4.7 per cent, are wired; of the 383 theaters seating from 500 to 750, 48, or 12.4 per cent, are wired; of the 199 theaters with seating capacity of 750 to 1,000, 60, or 31.3 per cent, are wired; while of the 132 theaters with seating capacity above 1,000, 74, or 56 per cent, are wired. These figures include only the houses operating daily, as those operating irregularly can not, in general, be considered as prospects for sound equipment.

The following table shows, by districts, the wired German theaters.

GERMAN THEATERS WIRED FOR SOUND FILMS

District	Total cinemas	Daily operating houses	Cinemas wired for sound	
			Number	Per cent
Eastern Germany	1,105	575	58	10.0
Central Germany	1,460	453	44	9.8
Northern Germany	658	277	36	13.0
Southern Germany	1,195	413	41	10.0
Western Germany	849	388	44	11.3
Total	5,267	2,106	223	10.5

The group comprising theaters with less than 300 seats each has the largest number of cinemas and smallest proportion of wired houses (1.2 per cent)—principally the original and now rapidly becoming inadequate Tobis installations—while the group comprising theaters with more than 1,000 seats each has the smallest total number of cinemas and the largest ratio of wired houses (56 per cent). The smaller houses, unable to support the expenditure for an adequate reproduction system, generally purchase an inferior type because of the price factor, whereas the larger ones, first and second run houses especially, will gradually become wired with better equipment.

Of the total number of 3,136 German cities having cinemas, only 93, or about 3 per cent, possessed wired houses at the close of 1929. Obviously, the best prospects for an increase in the sound-film theater net are in the larger cities. Of the cities with a population of 100,000 or more, 95 per cent have wired cinemas. These 47 cities have 1,234 daily operating houses, of which 168 were wired at the close of 1929. Of the cities with 50,000 to 100,000 population, 50 per cent have theaters equipped for sound films, while only 1 per cent of these less than 10,000 have such houses.

The ratio of wired houses to the total number of daily operating cinemas also decreases according to the seating capacity. Of the total number of wired houses throughout Germany, 168, or 75 per cent, are in the group of 47 cities with a population of 100,000 or more.

On the other hand, of the total number of daily operating theaters (1,234) in these 47 cities, only 13.6 per cent are wired. In this first category of cities, the largest number of wired houses is in the eastern part of Germany, where 51 of the total of 168 wired, or 30 per cent, are located. Western Germany, with 17 large cities and 198 cinemas, has 34 wired houses. Southern Germany, with 12 large cities and 228 cinemas, has only 27 wired, while northern Germany, with 6 of the larger cities and 156 cinemas, has about the same number wired.

Northern Germany has a greater number of cinemas with over 1,000 seats more than the southern part.

Eastern Germany maintains its leadership in sound-equipped theater development chiefly because it includes Berlin and four other large cities. Of the total of 488 cinemas in the district, 382, or 78 per cent, are in Berlin, while of the total of 51 sound-equipped houses in eastern Germany, 42, or 82 per cent, are in Berlin. Of the 2,106 daily operating houses in Germany, Berlin has 382, or 18 per cent, and of the 223 wired houses throughout the country, Berlin has 42, or 18 per cent.

FILM PRODUCTION

There were 192 films produced in Germany in 1929 by 92 separate production units. Ufa, with 13, produced the largest number of films, Aco followed with 8, and 3 companies—Homfilm, Aafa, and the German producing branch of an American company—share third place with 7 each. Werofilm, Hegewald, Emelka, and Albo show 5 each, and Terra produced 4. Thirteen companies produced 3 films each, 18 companies 2 each, and 48 companies 1 each.

Only four sound films and four with synchronization were produced. Of these Ufa produced one in each category, F. P. S., Froelich, and Aafa each produced one sound film and Greenbaum, Terra, and Eichberg each produced a film with synchronized musical effects.

There were 130 German films with a total length of 313,285 meters produced in the first nine months of 1929, and 90 sound pictures with a total length of 23,353 meters, or less than one reel average length. Three short silent films with a length of 379 meters were produced in the entire year, and 728 educational films with a total length of 412,803 meters; most of the latter were industrial or advertising films of various types. Of the sound films only a comparatively small number, probably not more than 10 or 15, were dialogue films, and hardly any of them could be called standard talking pictures.

With the beginning of 1930 the Ufa brought upon the market five sound features with German dialogue and English and other foreign versions, which are of a much more ambitious nature and correspond roughly to the sound features produced by the American companies.

The average cost of the silent features was very low and could be estimated at not more than 120,000 marks. The great majority of the sound films were also made cheaply and would probably not average more than this figure. However, the Ufa sound features previously referred to are reported to have been made at a total cost of $2,000,000, or an average of $400,000 per picture, the most expensive one being "The Blue Angel," which is reported to have cost $700,000.

As stated above, the production of sound shorts has not yet begun in Germany. Only three silent shorts were made last year, and sound shorts aside from educational films will also be unimportant in German production. The German film industry has never had much success with comedies or animated cartoons.

Only two German studios are now equipped for the production of sound features, the Ufa studios at Neubabelsberg and Tempelhof. It is true that attempts have been made to produce sound pictures elsewhere, notably the efforts of the Tobis and some shorts produced by the Klangfilm in their laboratories for experimental purposes At the present time, however, no other first-class studio exists in Germany outside of the Ufa The Neubabelsberg studio is the larger and better equipped It consists of a large building divided into four units with the machinery and control apparatus regulated from the center These studios have all been constructed entirely for sound-film purposes In addition, four other studios in Neubabelsberg have been converted to sound production, but they are not so satisfactory The Tempelhof sound-film studios are smaller and much less important

DISTRIBUTION

During 1929, 426 feature films were censored in Germany, as compared with 520 during 1928, 521 during 1927, and 515 during 1926 Of those censored during 1929, 192, or 45 1 per cent, represented domestic production, as compared with 221, or 42 5 per cent, during 1928 and 241, or 46 3 per cent, during 1927 American films censored during this period totaled 142, or 33 3 per cent, as against 205, or 39 4 per cent, during 1928, and 192, or 36 8 per cent, during 1927 Other foreign films totaled 92, or 21 6 per cent, as compared with 94, or 18 per cent, during 1928 and 88, or about 17 per cent, during 1927 Thus the German share of the total market supply for 1929 increased by 2 5 per cent, the American share decreased by 6 1 per cent, and the other foreign share increased 3 6 per cent over 1928 figures

FEATURE MOTION-PICTURE FILMS CENSORED IN GERMANY

Country of origin	1929	1928	1927	1926	Country of origin	1929	1928	1927	1926
United States	142	205	192	229	Italy	2	5	6	8
Czechoslovakia	20	10	12	7	Sweden	2	3	5	5
England	17	15	2	2	Hungary	2	2	1	2
France	16	24	27	22	Estonia		1		
Austria	16	20	15	22	Brazil				1
Russia	10	10	14	8	Germany	192	221	241	202
Japan	4								
Denmark	3	4	6	7	Total	426	520	521	515

This table reflects a gradual decline in the American supply which is a result of the German film-control decree, yet slightly more than 78 per cent of the market supply in 1929 was furnished between domestic and American production Czechoslovak films seem to be gaining in strength in Germany, but these are seldom shown in first-run houses and are imported more or less on exchange agreements between the professional trades of the two countries, much similar to the manner by which Austrian features get showings in Germany British films are slightly on the ascendancy in Germany because of German-British joint-production efforts of the past few years The French film showed a slight decline as compared with previous years The Russian film has a small but enthusiastic appeal in certain parts of Germany

The total of German-made features decreased 19, or 13 1 per cent, under the domestic production of 1928 The American total of 142 features reflected a decrease of 63 films, or 30 7 per cent, under 1928 figures Other foreign films more or less held their own with the previous year

The following table shows the total number of features censored during the year by months as divided among German-made, American-made, and other foreign, together with the German monthly percentages

FEATURE MOTION PICTURES CENSORED IN GERMANY DURING 1929

Month	German	American	Other	Total	Percent German
January	13	8	11	32	41
February	14	7	3	24	58
March	12	13	8	33	37
Total, first quarter	39	28	22	89	45
April	12	6	3	21	57
May	9	16	8	33	27
June	9	6	11	26	35
Total, second quarter	30	25	22	80	38
Total, first half	69	56	44	169	41
July	14	26	6	46	30
August	24	17	8	49	49
September	28	12	11	51	55
Total, third quarter	66	55	25	146	45
October	16	9	14	39	41
November	16	12	5	33	63
December	25	10	4	39	70
Total, fourth quarter	57	31	23	111	51
Total, second half	123	86	48	257	48
Grand total	192	142	92	426	45

It is interesting to note that the German feature supply for the first six months of the year was 54 films less than during the second half This may be explained by the fact that, during the first half of the year, producers were hesitant in view of the indefinite demand for silent features, and by their inability to produce sound features At the end of the half year, however, it became apparent that the German-American patent litigation was hindering sound-film developments, and producers, consequently were forced to renew their previous silent-film activities, a situation which should continue until more German cinemas are wired

So far as actual distribution is concerned, the number of films distributed is somewhat higher than the number of films censored, since it represents certain carry-overs from films censored the previous year The total number is 439 as against 426 films censored in 1929, 237 films were of foreign origin and 202 of German make This total compares with 514 films distributed in Germany in 1928, of which 217 were German and 297 foreign

No less than 79 companies distributed pictures in the German market in 1929 Of these, 6 distributors handled 20 or more features each, 3 from 15 to 20 features, 5 from 10 to 15 each, 8 from 5 to 10 each, 3 handled 4 features each, 9 handled 3 features each, 13 handled 2 features each, and 32 one feature each

GENERAL SITUATION

The general film situation in Germany was discouraging during 1929 The number of films produced was less than the preceding year Imports also fell off, and exports of German films showed a very bad slackening The total box-office receipts of film theaters in Germany were decidedly less The main reason for this state of affairs is the introduction of the talking pictures

With the market practically barred to American talking pictures by the patent litigation already discussed, there was little incentive for German theater owners to install reproducing apparatus, because German talkies have expanded slowly and only at the beginning of 1930 is there evidence that talking pictures will be produced in the German language which will be able to fill German theaters and do a profitable business Accordingly, the year was practically lost so far as the German film industry is concerned While the local apparatus companies, Klangfilm and Tobis, have been making some progress in the manufacture and sale of their equipment, their progress is slow because they can not sell many machines to German exhibitors until it becomes evident that there will be a steady supply of good German talkies available

Trade opinion in Germany has been somewhat adverse to the sound film One reason for this is that the market has been barred to most of the American productions, and judgment of the trade in Germany is based upon those few pictures which they have seen and which are long out of date in America

Certainly only a small number of English-dialogue pictures can be shown in Germany profitably When the novelty wears off, only German dialogues will be financially possible It is highly doubtful whether German versions of the English-dialogue films made in the United States will be successful, as the public is quick to detect any flaws in the pronunciation or speech of the actors

It seems doubtful also that the Germans will be able to export German-dialogue films very far outside their own boundaries, even to small neighboring countries where German is well understood Local political feeling may bar the use of the German language in such countries Under these circumstances, it will be seen that the export prospects for German-dialogue films are not too bright, although if they are made on a modest scale and do not cost over $500,000, they can possibly recover their cost under present conditions and show a little profit

The Klangfilm syndicate is going ahead with wiring German theaters in the coming year The Ufa theaters are all being wired with this system, and considerable progress will be made in all the other larger cinemas, which will not be able to obtain silent features simply because they are not being made, although many of them would prefer to keep on with the silent films

The small country theaters will probably be extensively wired with cheap disk systems, for example, the Kinoton, which is claimed to sell for around $1,500 Whether the German film audiences will be satisfied with the reproduction on equipment of this character remains to be seen

Production plans for 1930 call for a maximum of between 60 and 80 sound features, of which 20 or 30 will be made by the Ufa, according to present plans, and the others divided among such companies as

Emelka, Terra, and the smaller producers, with a number financed by foreign companies One American firm is now going ahead with plans to produce some 6 to 12 talking features in Germany next season There is no likelihood that American apparatus will be allowed to enter Germany in the near future

FILM-IMPORT REGULATIONS[1]

On February 1, 1929, the German Government announced that the present import regulations on motion-picture films would be prolonged for one year—that is, up to June 30, 1931 This allows 210 foreign films to come in, of which import permits for 160 are given to German film renters in proportion to the number of German films they released during 1928 and 1929 The remaining 50 import permits are distributed among companies which have exported German films in the last two years

The film commissioner, in issuing these regulations, made the reservation that special regulations might be issued at any time regarding the importation of talking pictures At the request of the office of the American commercial attaché a promise was given by the film commissioner that up to June 30, 1931, sound features would be treated just the same as silent features in the handling of import permits, but the reservation still applies on sound shorts, and it is possible that special regulations may be made regarding their importation These regulations will not come for several months, however.

ITALY

By Mowatt M Mitchell, American Commercial Attaché, Rome

One of the handicaps on the Italian film trade is the severity of the censor board in dealing with practically every class of film The general veto which extends to all talking films in any language other than Italian and which extended at one time also even to song in foreign-language films has, to some extent, discouraged theater owners from installing apparatus for the projection of such films

Films dealing with modern Russian life, no matter where produced, which tend to extol communistic theories are absolutely taboo, and in the case of certain Russian films which eventually were projected, they were so cut as not only to have eliminated all objectionable matter but also to make even the plot entirely garbled This ruling has recently been somewhat modified

An effort is being made to get around the regulation proscribing talking films in a foreign language by superimposing Italian on certain films, but opposition is being raised even to that, it being claimed that the Italian language is made riduculous when evidently uttered by a foreigner masking as an Italian However, certain of the more tenacious importers are arranging for this superimposing of Italian on such films and, in the case of a rather unusual British film, hope to prevail upon the censor board to pass that particular picture

It would appear that during 1929 only one new cinema was erected in Italy This particular theater is situated at Milan, has a seating capacity of 2,500, and is called the Odeon No information is available regarding reconstructed cinemas during the year

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[1] The text of the film import decree is given in the appendix of this bulletin

From reliable information it appears that 51 theaters have been equipped with sound apparatus, although their location and seating capacity are not known American apparatus is installed in 25 of them, Melovox (French) in 18, Gaumont (French) in 6, and Pio Pion (Italian) in 2 The Italian apparatus sells at about 60,000 lire ($3,150)

With the present lack of organization and the general unpopularity of Italian films, it is not surprising that production should be on an exceedingly small scale In fact, during 1929 only four films were produced in Italy, all silent The average cost of these films was about $25,000 Augustus Films produced 1, A D I A (Association Direttore Italiani Associati) 1, and Supremefilm 2

The Cines studio of Rome is the only studio equipped for the production of modern films

During the year 806 films were presented to the censor board There were 244 American feature films, of which 47 were with sound, and 207 foreign features, all silent Of the news reels, comics, etc , not over 500 meters, 157 were American, of which 103 were with sound, and 98 were foreign, all silent, of those from 500 to 1,000 meters, 80 were American, of which 10 were with sound, and 20 were foreign, of which 1 was with sound In no case was a silent version presented with the sound production

American films dominate the Italian trade, in some cases American films run for two or three weeks, which is not true of foreign films Beyond the difficulties touched upon, caused by the zeal of the censor board, no regulations appear to be proposed which will injure or affect American films in Italy

It will probably be some time before most of even the larger Italian cinemas are equipped with sound equipment The general dislike of the public for dialogue or song films and their general continued preference for the orchestra and its music keep the installation of such sound apparatus from being an imperative necessity Before the taste of Italian audiences changes, it is thought that better and less expensive machines will be put on the market

The introduction of sound apparatus in Italy naturally created a certain stir, mingled with curiosity It is now some time since the sound film was first presented to an Italian audience While it was a great attraction at the beginning, it would not be true to say unreservedly that sound films are liked or appreciated by Italians American engineers and others who have installed sound apparatus are perhaps too inclined to the statement that Italian theater owners do not know how to present the new pictures There may be some truth in this, but the general criticism, on the part of Italians as a whole, is that sound films are unnatural, the voice reproduction poor, and the musical effects unsuited to and not to the taste of Italians

BELGIUM

By Lucian Putnam, Secretary to American Commercial Attaché, Brussels

During 1929, 10 new cinemas were constructed in Belgium, thus increasing the number of existing seats by about 7,000, and 2 were improved, adding about 1,000 seats It is announced that the Olympia Theater of Brussels will be transformed into a picture house during the course of 1930 A rumor is also spreading that offers have been made by an important film-producing company to buy the Alhambra Theater, also of Brussels, which is the largest theater in the city

During 1929 the following motion-picture houses were equipped with sound apparatus

	Seats
Coliseum (Brussels)	1, 200
Cameo (Brussels)	800
Trianon (Brussels)	450
Victoria (Brussels)	700
Monnaie (Brussels)	800
Agora (Brussels)	2, 000
Scala (Brussels)	1, 000
Eldorado (Charleroi)	1, 100
Rialto (Ostend)	1, 000
Coliseum (Liege)	1, 100
Palace (Liege)	2, 000

The sound equipment in these theaters is of American manufacture

Five films were made in Belgium during 1929, only one was a sound film The total cost of the films produced is estimated to be around 2,000,000 francs The four silent films produced are mostly on patriotic subjects

The principal producer in Belgium is Lux Films (G Schoukens), whose studio is located in the Boulevard de Nieuport, Brussels The films produced are of no importance on the world market and are of local interest only However, the sound film produced, called La Famille Klepkens, may be projected in France. This film is the first sound film produced in Belgium and was shown for the first time at the Coliseum on January 17, 1930, in the presence of members of the royal family The principal item of interest is the language spoken by the actors, a mixture of so-called Belgian-French and Flemish, which limits the market for the picture to Belgium and certain parts of France The picture was taken partly in Belgium and partly in Paris, and the sound version was made in a Paris studio This film will have three versions—a silent one, one in French, and one in Flemish

There was no production of sound short subjects in Belgium during 1929

There are no Belgium studios equipped for sound film production

During 1929 approximately 700 new films were censored for release in Belgium, 70 per cent of them were American, 15 per cent German, 10 per cent French, and 5 per cent Belgian

During 1929, 17 sound films were projected in Belgium Of these 16 were American films, the other one being "Les Trois Masques," a French film produced by Pathé-Natan The American films also appeared in silent versions

GENERAL TRENDS

The motion-picture business in Belgium was satisfactory during 1929, although the people operating cinemas complained bitterly about the taxes levied The prestige of American production was well maintained throughout the year, particularly for the sound film, which was the outstanding feature of the market

Up to the present time, sound films have met with great success in Belgium However, many Belgians do not understand English, and sound versions in English may be less popular when the first curiosity craze is finished The American distributors very much fear the competition of French sound films in 1930 It is reported that 18 French films are in preparation and will undoubtedly be projected in Belgium The American distributors also fear that if American firms do not produce French sound films, much ground will be lost on the Belgian market They think that 1930 will not be as favorable for silent films as 1929, as the demand for sound films is steadily increasing However, in several centers of the Flemish part of the country the market for silent films will not suffer greatly, as Flemish sound films are not likely to be produced, and neither French nor English can be understood by the people

It is estimated that during 1930, 50 more cinemas will be equipped for the projection of sound films

The trend toward equipping cinemas in the Provinces with sound-film apparatus is becoming marked Charleroi and Ostend each have one theater now equipped for sound films, Liege two, and plans are under way whereby Antwerp will have several in the near future However, any great development of sound-film projection appears to be hampered by the high price of American equipment

There are no indications of studios being fitted with sound equipment in the near future

There is no legislation inimical to the interests of American films in view New legislation, principally for reduction of taxes paid by the theaters, may be expected in 1930, since such reductions have been proposed in the general tax program submitted at the end of 1929

The film distributors are starting a campaign against the censoring of sound films on the grounds that children of 14 years of age can go to any legitimate theater where no censorship exists as long as the plays are not essentially abjectionable on moral grounds They also state that because of the fact that certain picture houses project their films with disks obtained from other sources, the distributors can not undertake any responsibility if such disks are not irreproachable The distributors claim they will start a press campaign if they do not receive favorable treatment in this connection from the censor organization

THE NETHERLANDS

By Paul S Guinn, Acting Commercial Attaché, The Hague

The outstanding development in the Netherland motion-picture situation in 1929 was the advent of the sound film Sound apparatus was first installed in a theater in Amsterdam in May, 1929, and a tabulation made early in December showed that 57 theaters in most of the principal cities and towns are now so equipped, while it is anticipated that installations in provincial theaters beyond first-run houses will, in the near future, considerably increase this total

Four new theaters, with a total capacity of 2,350 seats, were constructed in 1929. These are Watergraafsmeer, Amsterdam, 300, Over 't IJ, Amsterdam, 400, Van Oss, Nijmegen, 600, and Feijenoord, Rotterdam, 1,050 One cinema of 400 seats (Heerengracht, The Hague) has been converted from a legitimate theater, while reconstructed theaters account for an additional 400 seats, so that the total seating capacity has been advanced by 3,150 seats These reconstructed theaters are the Roxy, Amsterdam, of 550 seats, the De Kroon, Zwolle, seating capacity of which was increased from 300 to 550; the Palace, Haarlem, seating capacity of which was increased from 600 to 750, the Veendam of 300 seats, and the Helmond and Assen, also of 300 seats each These two latter were damaged by fire and were rebuilt

Sound apparatus of domestic production dominates the market, accounting for 45 out of the total of 57 installations Of these 45, 30 are Loetafoon, 10 Nillson, 3 Meulkens, 1 Kesslerphone, and 1 Asta National In addition, there are 5 of American manufacture, 5 Tobis (German), 1 Naturetone, and 1 Rommofone, the two latter being English

The Netherlands does not have any well-developed motion-picture production industry, only two feature films having been produced during the year by local enterprises, dealing primarily with the Netherland East Indies The first of these, known as "Maha Cyclus," was put out by the Polygon company at Haarlem, and the other, "With Willy Mullens Through the Netherland East Indies," was made by Willy Mullens, of The Hague They were both silent films

Little or no progress has as yet been made in the production of sound short subjects, although it is rumored that the Willy Mullens concern is planning a sound studio

The number of feature films censored in the country during 1929 is placed at around 700, out of which about 600 were American About 80 feature films with sound were censored, and a silent version accompanied most of these Nearly all of the sound films were produced in the United States According to the Central Film Censorship Committee of the Netherland Government 3,003 films, totaling 2,255,350 meters in length, were censored during 1929 The division of these by country of origin is not given

As a whole, the year was favorable for the film trade, although the summer season was particularly bad Trade opinion considers that the sound films already shown have been favorably accepted by the public, more especially the singing, dancing, and talking type, and are generally well understood with the aid of superimposed titles While the sound film is still somewhat of a novelty, the trade is generally confident of its future Higher prices are obtained for these films, and it is anticipated that they will account for considerable financial returns in the future Practically all houses in the country want sound equipment, and it is believed that even the provincial theaters will soon be wired

As far as can be ascertained, there are no particular production plans for 1930, although, as indicated, one concern is reported to be contemplating a sound studio

No legislation inimical to American films was passed during the year

DENMARK

By Paid H Pearson, Assistant Trade Commissioner, Copenhagen

The outstanding development in the Danish motion-picture industry during 1929 was the introduction of the sound film However, the expectations and hopes linked to this development were not fulfilled, and despite the advent of this innovation, the year can be characterized as a rather unsatisfactory one for the Danish industry

Only meager statistical material covering the entire year is available as yet, but from the data on hand it can be seen that the earnings of the Danish motion-picture theaters during 1929 registered a decrease compared with the earnings during 1928 The income of the Copenhagen cinemas during the first half of 1929 amounted t 3,200,000 crowns ($857,500), while during the corresponding perio of 1928 the receipts totaled 3,700,000 crowns ($991,500), a decline o about 13 5 per cent This drop in revenue was caused to some exten by the fact that several of the largest houses were closed for som time to permit the installation of sound equipment These installa tions have been very expensive, a feature on which the saving occa sioned by the fact that an orchestra is no longer needed has mad little impression Furthermore, the trade states that the new film have not been the cause of any material increase in attendance Also, owing to the fact that it has been difficult to book a sufficien number of sound-film releases, the wired theaters have been force to show silent films intermittently and thus at times have bee burdened with the additional expense of orchestras The result is therefore, that while the receipts have registered a decline, the ex- penses of some of the houses have registered an increase This circumstance, on top of the burdensome taxes which are exacted makes the financial problem a difficult one As no sudden change is expected, the outlook for 1930 does not appear bright

EXHIBITION FACILITIES

There are about 400 motion-picture theaters in Denmark, of whic only about 270 operate daily The total seating capacity of th motion-picture houses is estimated at 140,000 In Copenhagen ther are 37 theaters with a total seating capacity in the neighborhood o 30,000 No new houses were opened during 1929, nor were an reconstructed during the year

There are 18 theaters equipped with sound apparatus, of which 9 are located in Copenhagen and 9 in the larger provincial towns Fifteen of the wired houses are fitted with apparatus of American origin, while three of the systems are of Danish origin, the Petersen & Poulsen equipment The installations are all adaptable to synchronized as well as nonsynchronized films, and thus can be employed for the creation of sounds in connection with the projection of silent films The following list gives the names of the wired houses, their location, seating capacity, and origin of sound equipment

DANISH THEATERS WIRED FOR SOUND FILMS

Name	City	Seating capacity	Type of equipment
Paladsteatret	Copenhagen	1,600	American
Kinopalaet	do	1 200	Do
Grand Teatret	do	600	Do
Colosseum	do	900	Do
Aladdin	do	884	Do
Roxy	do	1,000	Do
Kinografen	do	200	Petersen & Poulsen
Rialto Teatret	do	700	American
Det lille teater	do	594	Do
Valby Teater	Valby	600	Do
Kinografen	Odense	800	Do
Paladsteatret	do	800	Do
Palaeteatret	Horsens	420	Do
Kino	do	400	Petersen & Poulsen
Regina Teatret	Aarhus	940	American
Slotsbiografen	Hillerd	275	Do
Paladsteatret	Vejle	520	Petersen & Poulsen
Do	Aalborg	600	American

PRODUCTION

Danish production of silent films during 1929 was small, as was also true of earlier years, and was confined to two features, both of which were produced by the A S Palladium of Copenhagen The production cost of each of these films is estimated at approximately 200,000 crowns (about $54,000) No extensive production is planned for 1930

The Danish sound-film industry at present is not very far advanced, and production to date has been confined to a few 1-reel subjects consisting of songs and short talks in which only local artists appear. The future of this branch of the Danish film industry is not thought to be particularly promising, as the domestic market is not of sufficient size to warrant the expense involved in the production of feature films, and there is little demand for Danish-dialogue films outside of Denmark It is expected that Danish sound-film production during 1930 will be limited to a single feature and a few 1-reel subjects

The only Danish film company which possesses a studio equipped for sound-film production is the A S Nordisk Tonefilm, Mosedalsvej, Copenhagen, which was organized shortly after the Nordisk Film A S discontinued operations in 1928 The new company, which recently increased its capital to 2,000,000 crowns in order to extend its activities in the field of sound-film production has rented the vacated studios of the Nordisk Film A S where the Petersen & Poulsen system of recording has been installed This system is based on the disk principle

DISTRIBUTION

The statistics of the Danish censor's office are compiled for fiscal years ending March 31 According to the records of that office, there were 1,656 films of a total length of 1,654,194 meters, exhibited during the fiscal year 1928–29 Of the total, 46 were sound films and, of these, all feature sound films were American-made There were 545 feature films shown and 959 sketches The United States is far ahead as regards both the number of films supplied and their total length, and during the fiscal year accounted for almost 58 per cent of the aggregate number and approximately 68 per cent of the total meterage The domestic industry, although it ranks second in point of the number of films exhibited, with 27 per cent of the total to its credit, is not of great importance as a supplier, as the aggregate length of the Danish films exhibited amounted to but 69,079 meters, or only 4 per cent of the total Germany offers the most important competition to the United States in the Danish film trade, and for the reported year its share represented slightly over 6 per cent of the total number and 14 per cent of the total length France followed, with a little over 4 per cent of the number and 6 per cent of the length The table which follows indicates the country of origin of the films shown in Denmark during the fiscal year 1928–29, their number, length, and the percentage of each supplied by each country

MOTION-PICTURE FILMS CENSORED IN DENMARK IN 1928–29

Country of origin	Number	Per cent of total	Meters	Per cent of meterage
United States	955	57.7	1,123,625	67.9
Denmark	452	27.3	69,079	4.2
Germany	106	6.4	238,445	14.4
France	71	4.3	101,535	6.6
England	27	1.6	57,115	3.4
Russia	16	1.0	41,515	2.4
Sweden	14	.8	15,925	.8
Norway	10	.6	3,945	.2
Italy	5	.3	3,010	.1
Total	1,656	100.0	1,654,194	100.0

Very little statistical material is available for the period since April 1, 1929. However, 424 films were distributed between April 1, and August 31. Of the total, 237 were American, 69 Danish, 67 German, 28 French, 15 English, 4 Swedish, 2 Norwegian, and 2 Russian. During the same five months 27 sound films were shown, 17 of American origin. During the remaining four months of 1929 an additional 73 sound films were exhibited, making a total of 100 sound films shown from April 1 to December 31, 1929.

GENERAL TRENDS

The Danish motion-picture situation in 1929, as already mentioned, may be characterized as rather depressed. Owing to the high entertainment tax, amounting to 40 per cent of the gross income, in addition to a license tax and the usual governmental taxes, such as income, etc., profits of the theaters have not been as large as might be desired, and some theater owners are said to be faced with financial difficulties. American films continue to be preferred by the public, and the American "talkie" has been the most important feature of the year. However, local exhibitors state that while the sound film met with favorable reception when first introduced, attendance has fallen off, as the curiosity of the public has been satisfied and their interest has waned. The foreign talking films are handicapped by the fact that only a small minority of the public understands English. Although the sound-without-dialogue films have no linguistic difficulties to overcome, 'the trade states that there is a noticeable preference for music furnished by regular theater orchestras as opposed to the music accompanying a sound film.

The fact that only 18 out of 270 theaters so far have installed sound equipment indicates that the development of this innovation is rather slow. A factor contributing to this slowness is the common belief that the purchase price of the installation is much too high and will soon decline. Those that have fitted their theaters with sound equipment state that they have not received the monetary benefits which were expected. Among the reasons advanced for the unfavorable returns is the fact that it seems to be rather difficult for local motion-picture theaters to book a sufficient number of sound-film releases. This means that they must show silent films intermittently, which necessitates engaging an orchestra and thus incurring an expense which the installation of the sound equipment should have saved them.

No legislation inimical to the interests of American films has been passed, but the American sound apparatus, since their introduction, have been the object of a good deal of comment Local press articles at first devoted their complaints solely to the price question, and Danish cinema owners and others expressed the belief that the price involved an unreasonable profit to the American manufacturers After the introduction of the Danish machines, additional articles appeared in which it was claimed that the American sound-film producers were attempting to keep Danish machines out of the market by stipulating as a condition that American sound films must be projected by American machines, and at the present time this question is the subject of controversy

NORWAY

By Marquard H Lund, American Commercial Attaché, Oslo

No new cinemas were constructed in Norway during 1929 The old Admiral Palads in Oslo, with 900 seats, was reconstructed for sound-film equipment and the seating capacity increased to 1,400 It is now called the Eldorado

Four American sound installations were made during the year, two of which are in Oslo—one in the Eldorado theater and the other in the Coloseum, with a seating capacity of 2,200 In addition, the Verdensteatret in Trondhjem, seating capacity 1,200, and the Bibliotek theater in Fredrikstad, seating capacity 800, were equipped with American sound apparatus

The German Klangfilm equipment has been installed in the Paladsteatret in Oslo, this is a trial installation, subject to approval It is not being operated at present, owing to mechanical difficulties A German engineer is expected to remedy the trouble A Bergen theater has also purchased a Klangfilm installation

Nordisk Tonfilm, a Danish concern making the Poulsen & Petersen equipment, has made an installation in the Parkbiograf theater in Skien Another is to be made in the Boulevard theater, Oslo, on a trial basis The Nordisk Tonfilm equipment is said to be particularly well suited for theaters of small size Its approximate cost is 12,500 crowns ($3,600)

The Glomen Komune has installed an apparatus of American make in its Rode Molle theater

Three feature films were produced in Norway during 1929—Laila, Froken Statsadvokat, and Selvigs Norgesfilm These are silent films The cost of Laila is estimated at 290,000 crowns, the cost of the other two is not known Laila was made by Lundefilm, and the other two privately No short sound subjects were produced during 1929, but it is expected that a beginning along this line will be made in 1930 A short sketch was produced in Copenhagen during December with Norwegian artists, which was scheduled to have its première in Oslo about January 15, 1930

Froken Statsadvokat is now playing in Oslo, but has not proven very popular Laila had a very big run all over Norway, and is to be shown in the United States also Selvigs Norgesfilm is purely a scenic film, intended partly for publicity purposes in foreign countries

There are no studios in Norway for either silent or sound film production

The Statens Filmkontrol censored 825 films during 1929 Of these, 337 were released for actual showings, 216 of which were American

Gross receipts from the 245 Norwegian theaters amounted to about 12,500,000 crowns in 1929 Of these, 103 theaters owned by municipalities showed receipts of 11,237,734 crowns Control of the principal theaters, therefore, is now entirely in the hands of the various communes Some of the few remaining independent houses—Colloseum and Kinopalaet in Oslo and the Rosenberg theater in Trondhjem—were taken over by the respective communes during the year Although each commune manages its own theaters, Kommunernes Film Central, Oslo, is considered as the center of affairs for all communes and undoubtedly has considerable influence and is consulted on important decisions

American film prestige seems to hold up well with the public, as is indicated by financial returns The press considers most American films inferior to European production from an artistic point of view, owing probably to a difference in taste Sound films with much American slang are not suited for the market On the other hand, musical comedies with attractive settings and all-talking mystery plays would make American sound films probably more popular The German sound picture Atlantic has been playing to full houses

The further development of sound films is rather promising, considered from the point of view of the public Most of the opposition comes from professional critics, who prefer the silent film, and a certain political element, which is opposed to commune operation of the theaters and quotes the sound film installations as an example of poor business judgment Norwegian text is shown for the benefit of those who do not understand English or German A surprisingly large number of people are familiar with English and German, however, but have difficulty in understanding typically American idioms For the same reason, American jokes and humor are not always understood

Additional theaters will probably be wired for sound film during 1930 The present cost of installation is considered too high, however A reduction in price should widen the market somewhat

No production, no expansion in studios, and no adverse legislation is contemplated for 1930

SWEDEN

By T O Klath, American Commercial Attaché, Stockholm

THEATERS

During 1929 there was a continuation of the trend toward larger and more modern motion-picture theaters in Sweden Seven new houses with a combined seating capacity of about 4,000 were opened during the year A few theaters were reconstructed, but the number of seats added was insignificant

About 60 theaters had been equipped with sound-film installations at the end of February, 1930, and others are being added slowly Most of the large houses have completed their installations, and the new equipment is now going into the smaller provincial theaters That the sound film has conquered the Swedish market is best indicated by the fact that Roda Kvarn, a first-run theater in Stockholm, announced some months ago by Aktb. Svensk Filmindustri as "the permanent home of the silent film," will soon have a sound apparatus installed

Of these 60 wired theaters, 20 have American equipment, 27 Nordisk equipment of local manufacture, and 11 Klangfilm

PRODUCTION

A total of seven purely Swedish feature productions were either planned or started during the year and, in addition, five were to be made in cooperation with other European producers Of these, eight are silent and four have both silent and sound versions Aktb Svensk Filmindustri so far has released only one synchronized film, this being Sag Det i Toner (Say It with Music) This feature is reported to have cost about 150,000 crowns ($40,000), and the sound part was made in Berlin Six silent feature films were released The average cost of the Swedish silent features may be estimated at from 80,000 to 125,000 crowns ($21,500 to $33,500), each, but it is impossible to obtain definite information as to the investment in films made in cooperation with other European producers

Film production in Sweden is dominated by Aktb Svensk Filmindustri, which in 1929 started production or planned about 10 feature films In addition, two features are now being made by two individuals, one of them being produced in a Danish studio Swedish sound short subjects have not yet appeared, but it is planned to start production soon

The only Swedish sound film produced and released so far was made by the Tobis system There is but one film studio of importance in Sweden, located at Rasunda, a suburb of Stockholm, and owned by Svensk Filmindustri It recently completed the installation of Tobis equipment for making sound pictures

DISTRIBUTION

According to the trade, approximately 350 feature films were censored for release during 1929, and of this total approximately 75 per cent were American Swedish features were next in importance The following statistics, compiled by the official censor, cover all pictures censored during 1929 and indicate to some extent the types and origin of films The total number of films (original and copies) examined during 1929 was 4,781, including 2,665 features, short subjects, etc , and 2,116 nature pictures, news reels, etc. The total of 4,781 included 1,974 original copies and 2,807 duplicate copies. Of the total number, 1,987 were from Sweden, 2,053 were from the United States, and 741 were from other foreign countries The Swedish figure appears so large because it includes a large number of news reels

The total length of film examined (including originals and duplicates) amounted to 3,862,841 meters, of which 3,294,171 meters represented features, short subjects, etc , while 568,670 meters represented news reels, nature pictures, etc Originals examined were 1,224,620 meters in length and copies 2,638,221 meters Of the total length of film examined, 633,845 meters originated in Sweden, 2,202,979 in the United States, and 1,026,017 in other foreign countries Only 76,086 meters of film were altogether banned by the censor, while about two-thirds of all film censored were forbidden for children under 16 years of age

During 1929 American producers supplied practically all of the sound films released in Sweden. Since the beginning of 1930 a few German sound films appeared, and most of these met with success. Silent versions accompanied the American pictures in nearly all cases, exceptions being the revue subjects, operettas, and exclusively singing pictures.

GENERAL TRENDS

The advent of sound films created a great deal of interest on the part of the Swedish public. At first the theaters showing sound films were filled with people who came out of curiosity. However, a large percentage of the public immediately became keenly interested in sound films, and the attendance at theaters showing this type of film increased over the previous year. In the larger cities a surprisingly large number of people are able to understand sufficient English to enjoy American dialogue if it is not too idiomatic. Considerable criticism is heard regarding American sound films that have been rescored to any extent. Furthermore, it is claimed that American films have entirely too much dialogue and too little action. One result of the American sound films has been to increase the interest in the study of foreign languages, particularly English. The introduction of sound pictures also has tended to obviate the seasonal characteristic of the market, most theaters in the past have closed for about three months in the middle of summer.

The American film industry undoubtedly increased its prestige in Sweden during 1929, although there were many difficulties on account of the sound feature. Certain local interests have endeavored to slow up or block the introduction of American sound films but have met with little or no success so far as the general public is concerned. On this account, however, many owners of smaller theaters have delayed the purchase of sound equipment. Some time ago an important daily newspaper in Stockholm arranged a reader referendum on sound films. The replies received were highly unfavorable to American sound films. On the other hand, audiences in some theaters have been given cards on which to state whether they thought the particular film shown would have been more enjoyable in a silent version. The results of these straw votes have been overwhelmingly in favor of sound pictures.

Svensk Filmindustri controls one or more first-run theaters in each of the 35 largest towns throughout the country and also is the only factor of importance in local production. Its operations during 1929 involved the erection of a few additional theaters and the installation of sound equipment in many of its houses. It is the best customer in Sweden of American film companies.

OUTLOOK

In general, it may be stated that an increasing number of Swedish film houses will be equipped with sound apparatus during 1930. There is some objection to the high prices charged for certain makes of apparatus, although it is generally admitted that the American apparatus reproduces sound better than competitive products. Smaller provincial theaters are purchasing cheaper European-made equipment.

It is believed that Swedish film production during 1930 will be about the same as in 1929 Plans are discussed for making German and other foreign-language sound version of a few Swedish feature films during 1930 It is reported that two American companies plan to produce sound features in Swedish by using Swedish actors Probably about half of the Swedish feature production during 1930 will have both sound and silent versions, while the other half will be only silent

There is no legislation proposed that would in any way affect the interests of American film companies

During 1930 Sweden should continue to be an important market for American film companies Although its population is only a little more than 6,000,000, the per capita expenditures for motion-picture entertainment is one of the highest in Europe, and for its size the country maintains an exceptionally large number of theaters American producers, however, must use every possible effort to adapt their sound pictures to local tastes if they are to maintain the predominant position they now enjoy in this market

CZECHOSLOVAKIA

By Dr Alois Broft, Office of American Commercial Attaché, Prague

During 1929 the number of motion-picture theaters in Czechoslovakia was increased by 50 with an average capacity of 440, or a total increase of 22,000 seats Apart from a few rebuilt theaters in smaller towns, all of these were new and constructed expressly for motion-picture performances In Prague 12 cinemas with a total seating capacity of 9,820 were completed during the year These figures represent a decrease as compared with 1928, when about 150 new theaters were put in operation This is ascribed to the fact that the total seating capacity of motion-picture theaters more than covers present requirements This is true particularly as regards Prague, where the number of first-run theaters has been growing at such a rate and the competition is so keen that the initiated speak of an imminent crisis which may manifest itself late in the spring or early in the summer of 1930 by a number of cinemas having to close down It is thought by many that only financially strong theater owners will be able to survive a slack season, with undiminished operating expenses accompanied by materially lower receipts

From August 15, 1929, when the first sound film was shown in Prague, to the end of the year, 14 first-run theaters were equipped with sound-film reproducing apparatus, 8 of these theaters are located in Prague An American make is installed in 8 cinemas, while German Klangfilm equipment is found in 3 theaters, a Czechoslovak device called "Belcanto" in 2 houses, and a Dutch reproducing set, "Loetaphon," in 1

The following table shows the names of theaters equipped for sound films, their location, seating capacity, and type of sound installation

CZECHOSLOVAK MOTION-PICTURE THEATERS WIRED FOR SOUND FILMS IN 1929

Name	Location	Seating capacity	Type of equipment
Adria	Prague	985	American
Alfa	do	1,100	Do
Avion	do	720	Klangfilm
Fenix	do	1,055	Do
Kapitol	do	1,045	American
Kotva	do	930	Do
Lucerna	do	900	Do
Passage	do	800	Do
Hvezda	Plzen	920	Loetaphon
Adria	Liberec (Reichenberg)	700	Belcanto
Narodni Dum	Pardubice	460	Do
Kapitol	Brno	950	American
Universum	do	780	Klangfilm
Forum	Kosice	700	American

The following cinemas were being wired for sound films and were expected to be in operation during January or February, 1930

CZECHOSLOVAK THEATERS BEING WIRED FOR SOUND FILMS AT END OF 1929

Name	Location	Seating capacity	Type of equipment
Hollywood	Prague	500	American
Skaut	do	730	Do
Central	Kralove Hradec	550	Edibell
Kammerlichtspiele	Liberec (Reichenberg)	650	Klangfilm
Olympia	Teplice-Sanov	350	Do
Stadtkino	Jablonec n M (Gablonz a d Neissa)	400	Do
Elite	Karlovy Vary (Karlsbad)	520	Do
Metropol	Warnsdorf	700	Do
Edison	Brno	430	Do
Dopz	do	400	American
Odeon	Moravska Ostrava	450	Klangfilm
Adlon	Bratislava	1 000	American
Redoute	do	900	Do
Urania	do	820	Do

Since 28 cinemas will have been equipped with reproducing apparatus within six months after the introduction of the sound film, it is believed that the number may be expanded to 50 by the end of 1930.

PRODUCTION

Approximately 25 feature films, including 4 comedies, were actually produced or in production in Czechoslovakia during 1929 The average production cost of a domestic film is placed at the rather low figure of 300,000 Czechoslovak crowns ($9,000), only a small number of films exceeding 500,000 Czechoslovak crowns ($15,000) It is reported that out of the total 1929 production only two films, Sv Vaclav (St Wenceslas, producer, Elekta Journal, Prague) and Plukovnik Svec (producer, Ocean Film, Prague), which are now nearing completion, involved a greater expenditure, namely, 4,000,000 Czechoslovak crowns ($120,000) and 1,500,000 Czechoslovak crowns ($45,000), respectively

To date no Czechoslovak sound film has been produced Two dramas of the 1929 production, Galgentoni (producer, Anton Film, Prague) and Pasak Holek (Bully, producer, A–B Film, Prague), are being synchronized at Berlin The silent version of the first Czechoslovak sound and talking film Slovanske Melodie (Slavonic Melodies) has just been started by Beda Heller, Prague, and sound versions in Czech, German, and English will be prepared at studios in Berlin and London

The 1929 domestic feature film production was chiefly in the hands of the following firms

	Films
Bratri Deglove, Prague	4
Elekta Journal, Prague	4
A–B Film Co , Prague	2
Star Film, Prague	2
Hera Film, Prague	2

The balance of the pictures produced during 1929 were the work of individuals or casual companies and in many instances suffered from lack of capital, experience, and equipment.

Joint production with foreign producers was effected in five cases. Three films were produced in cooperation with companies in Berlin, one with a film company in Vienna, and one with a company in Paris Such cooperation involves, as a rule, the collaboration of several foreign actors, the use of the facilities of foreign studios, foreign financial assistance, and distribution abroad by foreign organizations

No Czechoslovak studio has been equipped for sound-film production At the present time there is only one regular studio for silent pictures in the country, owned by the A–B Film Co , Prague The only other studio, which was owned by the firm Karel Lamac in Prague Kosire, burned down in June, 1929, resulting in further reliance on studios in Berlin and Vienna

DISTRIBUTION

According to the preliminary statistics covering motion-picture films censored by the Czechoslovak authorities during 1929, 274 dramas, 376 comedies (mostly short subjects), 94 educational and cultural films, and 203 news reels, a total of 947 films with a length of 924,650 meters, were imported into Czechoslovakia from the United States This compares very favorably with 1928, when 803 American films having a total length of 887,130 meters were imported

The second most important supplier of motion-picture films to Czechoslovakia was Germany with 136 dramas, 72 comedies, 213 educational and cultural films, and 130 news reels, a total of 551 films with a length of 592,122 meters Then follow, in order of importance, France with 186 films, Great Britain with 40, Soviet Russia with 35, Austria with 44 (mostly short cultural films), and other countries with 26

The total number of films imported into Czechoslovakia and censored during 1929 was 1,829, with a total length of 1,840,164 meters, as compared with 1,610 films and a total length of 1,666,054 meters in 1928

FILMS CENSORED DURING 1929 IN CZECHOSLOVAKIA

Country of origin	Dramas		Comedies		Educational and cultural		News and advertising		Total	
	Number	Length in meters	Number	Length in meters	Number	Length in meters	Number	Length in meters	Number	Length in meters
United States	274	544, 620	376	286, 782	94	36, 760	203	56, 488	947	924, 650
Germany	136	326, 262	72	126, 055	213	110, 020	130	34, 785	551	597, 122
Czechoslovakia	29	70, 405	7	15, 640	101	60, 232	267	68, 960	404	215, 237
France	32	88, 090	6	8, 010	52	15, 675	96	23, 447	186	135, 222
Great Britain	17	40, 240	8	10, 065	[1] 14	[1] 4, 095	1	185	40	54, 585
Soviet Russia	24	46, 560	1	2, 070	7	6, 435	3	2, 475	35	57, 540
Austria	6	13, 705	6	8, 800	31	2, 585	1	420	44	25, 510
Denmark	-----	-------	4	9, 180	4	3, 985	-----	-------	8	13, 165
Other countries [2]	9	21, 720	1	790	7	9, 620	1	240	18	32, 370
Total	527	1, 151, 602	481	467, 392	523	249, 407	702	187, 000	2, 233	2, 055, 401

[1] Including 10 films having a total length of 2,800 meters of Canadian origin
[2] Mostly Italy and Norway

As regards the number of sound films imported into Czechoslovakia, it must be borne in mind that the first sound film was shown on August 15, 1929, and that the number of theaters wired for sound-film reproduction increased only gradually to 14 at the end of the year. The imported sound films were almost exclusively of American origin and included 16 feature films having a total length of 43,410 meters, 25 news reels having a total length of 8,120 meters, and 33 short films (songs, music, etc.) having a length of 7,260 meters.

The American sound films censored for release during the latter half of 1929 totaled 74, having a total length of 58,790 meters. In addition, 3 German shortsound films (2 films by the Tobis company and 1 by Ufa) having a total length of 480 meters were shown.

As a rule, sound feature films are imported with silent versions, so that the distributors can sell them to theaters which are not yet equipped for sound-film reproduction.

GENERAL TRENDS

The condition of the Czechoslovak motion-picture market during 1929 was favorable for American pictures, which not only maintained their prestige, but again gained ground against the German competition, which was rather severe in 1928. During 1929 Germany exported to Czechoslovakia a smaller number of dramas and comedies (208 films 452,000 meters in length in 1929 as compared with 224 films 508,000 meters in length in 1928), while the imports of such films from the United States increased considerably (650 films with a total length of 832,000 meters in 1929 as against 635 films with a total length of 713,000 meters in 1928). The competition of other countries and domestic production were minor factors.

The increased popularity of American films was to some extent due to the introduction of sound films. The Czechoslovak public received them with enthusiasm and filled the sound-equipped cinemas in spite of substantially increased entrance fees. The cinema owners are thus far satisfied with the financial results, there is very little competition at present, and the novelty attracts large crowds. The exhibitors point out that actual sound films are in great favor, whereas silent films with a synchronized version are regarded less favorably, being called "movies with phonograph accompaniment," and attract a much smaller public

As stated above, 28 more theaters, including 10 in Prague, will shortly be equipped for sound films Of course, most of these are the large first-run theaters, since the smaller houses can not as yet afford the expense of installing sound-reproducing apparatus The further development will also force the second-rate cinemas to change over to sound films, owing to the fact that the American production is largely devoted to sound films and that the present high prices for silent films are increasing as a result of the shortage beginning to be manifest on the local market

Although one American make of sound apparatus is leading the market and is considered the best, the German Klangfilm apparatus is second in importance, owing to its low price

The plans of the Czechoslovak film producers are as yet rather indefinite, the more so since domestic film companies do not wish to invest much money in silent pictures under present circumstances It is expected that the cooperation between the domestic and foreign film-producing companies will be extended, particularly with a view of turning out Czech sound films, since there is no sound-film studio in Czechoslovakia

The domestic film producers are handicapped greatly by a lack of properly equipped studios, there being at present only one regular studio Recently an effort was made to create a joint movement for the purpose of erecting a modern studio which could also serve for sound-film production Since private financial means are not adequate, a Government subsidy would be sought To date, the project is very indefinite and has not proceeded beyond a general discussion

The Czechoslovak Government does not appear to have plans inimical to American motion-picture interests, nor is there any prospect for an early change in the present situation No action was taken by the Czechoslovak Government on the film law which was drafted in 1928 for the purpose of introducing a quota system on foreign films, the domestic film producers are showing no further interest, and as the distributors and the theater owners were never very enthusiastic, it may be assumed that the bill has been abandoned

ESTONIA

By Edward Hunt, Office of American Commercial Attaché, Tallinn

There are approximately 55 cinemas operating in Estonia, with a total of about 13,000 seats There are 14 cinemas at Tallinn, 6 at Tartu, 5 at Narva, and 3 at Parnu, the rest being distributed in the Provinces During 1929 only two cinemas were constructed, one at Tartu, and one at Parnu, with approximately 500 seats each Only a few minor cinemas were reconstructed during the year, the number of seats, however, remaining unchanged

In 1929 only one cinema, Gloria Palace, Vabaduse Plats, Tallinn, was equipped with sound apparatus of a phonograph type operated in the projection booth with a loudspeaker stationed behind the screen

Marska Film Production, 4 Viru tanav Tallinn, produced two films in 1929, (1) Vigased Pruudid (Brides with Defects), featuring Estonian country life, in seven acts, length 2,100 meters, cost of production 1,500 crowns ($400), (2) Dollarid (The Dollars), a feature film in eight acts, length 2,400 meters, cost of production 7,000 crowns ($1,870)

"Sirius Film (Theodor Luts), 19 Aia tanav, Tartu, produced only one film in 1929, Noored Kotkad (The Young Eagles), featuring the Estonian War for Independence, in eight acts, length 2,400 meters, cost of production 15,000 crowns ($4,000)

Mrs Ershova, 1 Vene tanav, Tallinn, produced one film, Juri Rumm (the name of a legendary hero), featuring certain historical events, in two series, 14 acts, length 4,200 meters, cost of production 15,000 crowns ($4,000)

The only studio in Estonia is operated by Estonia Film, of 4 Viru tanav, Tallinn It is equipped for the production of silent films exclusively

Motion-picture films for release in Estonia are censored first by the department of police, political division, Toompea Loss, Tallinn. Films approved for release by that department are further passed upon by the Estonian Ministry of Education to decide whether they are fit and proper to be attended by minors In compliance with the decision of the local educational authorities, cinemas usually display an announcement in their different advertising mediums as to whether the particular film can be attended by minors

The report on the activity of film censorship in Estonia, given below, is made out for the fiscal year ended March 31, 1929 Later figures are not available

MOTION PICTURES CENSORED IN CZECHOSLOVAKIA IN 1928-29

Country of origin	Scientific		Dramatic		Comedies		News reels		Total	
	Number	Meters	Number	Meters	Number	Meters	Number	Meters	Number	Meters
United States			201	445,372	138	95,233	38	7,760	377	548,365
Germany	6	12,535	121	319,379	25	37,516	43	10,590	195	380,020
France			13	35,900	15	8,005			28	43,905
Estonia							17	4,035	17	4,035
Russia	1	1,200	15	30,442					16	31,642
Austria			12	34,300	1	2,700			13	37,000
Denmark					3	7,500			3	7,500
Poland			2	5,400					2	5,400
Total	7	13,735	364	870,793	182	150,954	98	22,385	651	1,057,867

It is proposed to equip the following cinemas in Tallinn with sound apparatus during 1930

	Seats
Gloria Palace	1,000
Rekord	500
Endla	600
Bi-Ba-Bo	350

In Tartu three cinemas, seating 1,500, are also expected to be wired during the year.

There is considerable interest in Estonia in sound films It is very difficult, however, to ascertain at present where the necessary equipment and requisites will be purchased Local cinema owners are not entirely against the American equipment provided the prices are reasonably low Considerable interest is also displayed in sound apparatus which produced sound from the film itself, although it is thought to be rather too expensive to warrant a wide use

Thus far the wiring system employed in local cinemas has been considered to be quite satisfactory Rearrangements have been made only in a few houses Large cinemas have a good wiring system and operate their own power plants to supply electric current in case the city power plants fail

With the exception of cinemas at Tallinn, Narva, Tartu, and Parnu, those operating in other parts of the country are hardly of adequate size to warrant their being wired, beyond the first-run houses

A number of feature films have been planned for production during 1930 The programs will not be made public as yet, and it may be that some of the plans will have to be curtailed owing to the lack of capital

The local agent of an American concern is awaiting the receipt of a sound-recording apparatus from New York so that he can start producing local sound news reels

The only studio in Estonia for the production of silent films is operated by Estonia Film It is difficult to say whether any expansions are proposed for sound filming The company produced no films in 1929, but may lend the use of its laboratories and studio premises to other enterprises

There are no laws in force in Estonia which are in any way inimical to the interests of American films, nor are there any such laws in prospect

LATVIA

By Basil Dahl, Acting Commercial Attaché, Riga

No new cinemas were built in Latvia during 1929, but the Casino, in Riga, was reconstructed and its seating capacity increased from 550 to 750 No other reconstruction work was undertaken

Only one motion-picture theater in Latvia, the Splendid Palace, in Riga, which has a seating capacity of 1,000, is equipped with sound apparatus, installed toward the end of 1929 It is a German-made double-disk reproducer (Prasing, Berlin) and costs $4,000 installed Two trials were made with sound-reproduction equipment in the Capitol cinema, Riga, but the apparatus failed to give satisfaction and no more trials were made It is reported that the owners of the latter cinema have made an arrangement with representatives of Soviet Russian manufacturers of sound-reproducing equipment For the time being, however, the Russians are not selling their equipment They have offered to lease it to the Capitol cinema for trial purposes providing they are given 50 per cent of the profits It is reported that the Russians will sell their patents to foreign manufacturers as soon as it has been proved that the equipment is satisfactory

Two other cinemas in Latvia, the Forum in Riga, having a seating capacity of 900, and the Kammerspiele in Libau, with a seating capacity of 500, are contemplating the installation of sound-reproducing apparatus in the near future The owners of motion-picture theaters in Latvia are, as a rule, familiar with only continental equipment (chiefly German and French), and the general opinion is that none of it gives full satisfaction

It is thought that American equipment, although superior in quality, is much too high in price Motion-picture theater owners assert that American equipment is sold in Europe at prices that are about 50 per cent higher than in the United States, which price increase, they think, is not justified Local film dealers and cinema owners have shown much interest in catalogues and general sales literature of American-made sound equipment It must be borne in mind that the purchasing power of the Latvians is very low and that this results in their favoring medium and low priced equipment

PRODUCTION

Only one film, a silent film called Latvijas Tapsana (Formation of Latvia), was started during 1929 It is an educational and patriotic film of local importance and is being produced under the auspices and at the expense of the Ministry of the Interior and the War Office It is 3,000 meters long and cost 32,000 lats ($6,175)

Two dramas of the Latvian studio, Latvju Filma, were completed in 1929 Both of these are silent films The first is called Heinrich Rautenfeld and the second In the Whirl of the Times The former is 2,100 meters and the latter 1,850 meters in length These films were shown in two cinemas in Riga and in the country districts, but without much success Latvju Filma went into liquidation recently It is estimated that the cost of producing each of its films was less than 10,000 lats The cost of producing news reels is 105 lats per 150 meters

Sound films have not been produced in Latvia

There are no studios equipped for sound-film production in the country

The company Latkino, in Peterbaznicas iela 1, Riga, was established in 1929 This company publishes the film journal Kino and operates a studio for training film artists Latkino has not yet evinced any activity in the production of films

DISTRIBUTION

The Latvian Film Censoring Board passed 418 feature films (dramas) totaling 882,773 meters in 1929 Of these, 219, totaling 458,124 meters, were American The following table shows the number and length of all films passed in 1929, by subject and by country of origin.

FILMS PASSED BY LATVIAN FILM CENSORING BOARD IN 1929

Type	American		Russian		Latvian		Others [1]		Total	
	Number	Meters	Number	Meters	Number	Meters	Number	Meters	Number	Meters
Comedies	72	35,381	2	670	------	------	34	13,313	108	49,364
Dramas	219	458,124	22	43,102	2	89	175	381,458	418	882,773
Educational	3	4,388	1	1 875	14	7,171	45	28,445	63	41,869
News reels	53	13,914	1	144	61	9,646	35	10,286	150	33,990
Advertising	1	95	------	------	31	2,739	4	1,506	36	4,340
Total 1929	348	511,902	26	45,791	108	19,635	293	435,008	775	1,012,336
Per cent of total	44.9	50 58	3 35	4 52	13 81	1 93	37 80	42.97	100	100
Total 1928	327	421,852	23	43,094	175	35,778	395	592,439	920	1,084,163
Per cent of total	35 54	38.08	2 50	3 97	19 00	3 30	42 93	54.65	100	100

[1] Principally German

Four sound films were censored for release and shown in Riga near the end of 1929 three in the Splendid Palace cinema and one in the Capitol cinema The sound-films shown in the Splendid Palace met with success, both with respect to technical performance and attendance, but the Capitol show was a failure, largely because of technical reasons It has been said that the sound-reproducing equipment was defective

Only American sound-films have been shown in Latvia

GENERAL TRENDS

The motion-picture business in Latvia in 1929, as well as other branches, was adversely affected by the 1928 crop failure, but it is gratifying to note that the ratio of American films released increased from 38 per cent of the total length in 1928 to over 50 per cent in 1929.

The first sound films displayed in the local cinemas were considered a matter of curiosity by the public, and, as a result, all performances were shown to full houses for two weeks The subsequent sound films did not meet with such enthusiasm, and considerable adverse criticism was heard regarding the reproduction, the value of sound films in general, and the foreign-language problem The opinion of the trade regarding sound films is that "talkies" in a foreign language will not become popular, but that films with singing and music (revues, etc), if satisfactorily reproduced, may meet with the general approval of the public One of the leading local motion-picture experts said that sound-films consisting of about 80 per cent music, 18 per cent singing, and 2 per cent dialogue are likely to meet with the greatest success in Latvia

Some of the leading cinemas in Riga that are not equipped with sound film reproducers, and a few of those in the large provincial towns, will probably be wired in 1930

It is believed that not more than one or two feature films and a number of news reels, all of only local importance, will be produced in Latvia in 1930

There is no present plan nor demand for the establishment of studios with sound recording equipment in Latvia

No legislation inimical to the interests of American films or equipment has been passed in Latvia, nor does it seem that such legislation is contemplated However, the attitude of the Film Censoring Board toward sound film is rather uncertain, and difficulties may arise There are no special laws governing the consoring of sound films, and no difficulties have been encountered in getting such films passed The basic Latvian law regarding silent films stipulates that all titles must be in the Lettish language Titles in other languages may follow, but these are considered only as translations and of secondary importance Whether an exception in this respect will be made in the new law on sound films is to be seen This problem is being discussed by a parliamentary commission Whether or not the insertion of local news reels in the program will continue to be obligatory and whether entertainment other than the display of films in cinemas will be permitted is also being considered by the commission

LITHUANIA

By Hugh S Fullerton, American Consul, Kovno

Up until January 27, 1930, no sound pictures were shown in Lithuania, but the German film firm Tobis, of Berlin, entered into a contract with the Odeon Theater of Kovno for the introduction of German sound films

The exhibition of sound films must be licensed by the police department of the Ministry of the Interior, since foreign languages are used It appears that license has been obtained for five sound pictures, one of which is in the Russian language and has not yet been completed

The apparatus which has been installed in the Odeon was manufactured by the German firms Nitsche, of Leipzig, and Jova, of Kassel The first sound film produced is the production of the Aafa, of Berlin The cost of the entire installation of apparatus in the Odeon Theater aggregated $4,000

It has been ascertained that the apparatus being installed in the Odeon requires an alternating current of 70 volts, while the Kovno electrical plant provides a direct current of 220 volts, hence a special transformer costing $140 has been purchased by the Odeon as a supplement to the other installation It is reported, however, that alternating current will be supplied by the electric-light plant in Kovno during 1930

The largest cinema in Kovno, the Metropolitain, is planning the installation of a sound apparatus, but considerable mystery surrounds this project at the present time, and the director declines to give much information with respect to it It is known, however, that a prominent film director in Riga has been in negotiation with the Metropolitain for some time, and it is believed that an effort is being made by him to lease this Kovno theater for a protracted period in connection with a plan to extend the sound-film service now being provided in his theaters in Riga and Tallinn It is thought that the sound apparatus to be used at first will be temporary American films are to be given at the Metropolitain, and a well-known American sound film is scheduled to appear there in the near future

Persons interested in film representation in Lithuania seem somewhat doubtful of the success of sound films because of the ignorance of foreign languages of a considerable part of the Lithuanian audiences It is estimated that in the neighborhood of 50 per cent of the spectators are Jews who would understand German, but the percentage understanding English is very small indeed Should the sound film develop in Russia, it would probably have considerable success here in Lithuania, in view of the fact that the Russian language is understood by most Lithuanians over 20 years of age

It is the general impression that American sound films will not have much success except as a novelty, and it is perhaps the expectation of the promotors of sound films for the Metropolitain Theater that they will have an immediate vogue with theatergoers who are actuated by curiosity and that by the time this interest dies out, the cost of the experiment will have been more than met It is not suggested that American companies producing sound films endeavor to compete with present organizations, at least until time has demonstrated the permanent appeal of this type of film with Lithuanian audiences

The Construction Department of the Lithuanian Ministry of the Interior recently informed a representative of the American consulate at Kovno that 106 permits for motion-picture theaters have been issued in Lithuania That figure does not, however, include the Memel, or Klaipeda district, formerly German territory, from which statistics of this character have not been obtained The following statistics show the permits issued by years in Lithuania from 1921 through 1929

	Permits		Permits		Permits
1921	7	1924	18	1927	9
1922	6	1925	10	1928	16
1923	22	1926	6	1929	12

It is estimated that there are not more than 20 cinemas in the Memel district, which has a total population of about 150,000 The principal city, Memel, has a population of 35,000, and there are other centers of 3,000 to 16,000

According to the Construction Department of the Ministry of the Interior, only approximately half of the 106 permits issued have been for permanent establishments

Kovno, the capital and principal city of Lithuania, which has a population of approximately 100,000, supports seven cinemas of a permanent character and of sufficient importance to warrant consideration by film producers These are the following Metropolitain, with 700 seats (built in 1929), Odeon, with 450 seats, Slabada, with 280 seats, Record, with 256 seats, Oaza, with 200 seats, Triumph, with 200 seats, and Palasas, with 138 seats

Only a few additions have been made, in so far as the Ministry of the Interior is aware, to the various cinemas in Lithuania during the past year No permits are required for remodeling of a minor character in theaters, and no major change in any of the theaters was reported during 1929

There is no film production of commercial significance in Lithuania at the present time, and it is understood that none is contemplated

It has been difficult to ascertain the number of films censored for release in Lithuania during 1929, but it has been estimated at about 500 About 40 per cent of the films on the Lithuanian screens are American, about 50 per cent German, and the rest French or Russian

Despite a rather unfavorable year for Lithuanian agriculture and industry, the general condition of the motion-picture theaters was reported to be fairly good

The establishment of the Metropolitain on the main street of Kovno was a notable event, and although not usually crowded, the establishment appears to be making money

In general, it may said that price plays a more important part on the Lithuanian motion-picture market than quality The buying power of Lithuania is low, and tastes are different from most other European or American communities

There is no discrimination against American films on the Lithuanian market On the contrary, they have an established popularity, despite the accessibility of the market to German producers The percentage of German films has grown, however, in recent years

FINLAND

By C Roderick Matheson, Secretary to American Commercial Attaché, Helsingfors

Three new cinemas were constructed in Finland during 1929, including one in Tampere, the Tuulensuu, and two in Helsingfors, the Gloria and the Atlantis The Tuulensuu has a seating capacity of 700, the Gloria 650, and the Atlantis 460

It is customary that theaters which require repairing or reconstruction be worked upon in the summer months in order to be ready for the winter season, which is usually relatively brisk During 1929 most of the cinemas underwent major or minor alterations, but their seating capacity remained the same The old Bio-Bio Theater, with a seating capacity of 400, was closed during 1929, and the theater was moved to what was formerly known as the Bio-Civis, with the same seating capacity The net additional number of seats in moving-picture houses in Helsingfors, therefore, totaled 710 and in all of Finland 1,410

The Arena (470 seats), Capitol (900), Kino-Palats (800), and the Gloria (650), all in Helsingfors, were equipped with sound devices during the year The equipment in each case was American

Four feature films were produced in Finland during 1929 by Suomi Filmi, Helsingfors, and three of them shown in the Helsingfors theaters These films were entitled "Kajastus," "Korkein Voitto," and "Kahden Tanssin Valilla " The fourth will be shown in 1930

O Y Kotka Filmi produced one film, Juhla Meren Ranalla Suomi Filmi, which is the only company in Finland producing feature films according to a continuous production program, is not equipped to produce sound films, nor is O Y Kotka Filmi, and neither at the present time contemplates the installation of devices for the production of sound pictures

The only sound films shown in Helsingfors during 1929 were American

According to the Finnish Board of Censors, 469 American films, aggregating 615,040 meters, were passed by that body in 1929 Other films passed by the board included Germany, 154 films, 205,980 meters, France 25, 50,045, Russia 30, 41,145, England 23, 37,565, Sweden 22, 21,275, and Denmark 5, 10,230 meters

Thirty Finnish films, principally of an educational nature, were passed, these aggregated 20,875 meters in length

The censors rejected 26 films of a total length of 49,130 meters during 1929 These originated in the following countries United States, 9 of a length of 15,260 meters, Germany, 5 of 12,370 meters, France, 1 of 2,130 meters, and Russia, 11 of 19,370 meters

There is no legislation in effect in Finland inimical to the interest of American films, nor is any anticipated

During the greater part of the year attendance at picture houses was considered good, during the last six weeks or two months of 1929, however, the depressed conditions in the country appear to have a material effect on the attendance, and many of the larger cinemas played to very poor houses While attendance during the Christmas and New Year holiday season is usually rather small, the winter season, as a whole, is normally the cinema season The 1929–30 winter season is not expected to be as satisfactory as usual for the motion-picture houses

POLAND

By Gilbert Redfern, Assistant Trade Commissioner, Warsaw

While the advent of the sound film has been the cause of uncertainty and anxiety to the motion-picture trade in Poland, it has had a very beneficial effect on the local film industry During recent months a pronounced demand from several European countries, notably France, Germany, and Czechoslovakia, has sprung up for Polish silent films, and it is reported that better prices are now being realized for them than the producers had ever hoped for. It is hardly likely that this unexpected demand is raising the Polish film industry to a position of affluence, but it undoubtedly means that the business is not so unprofitable as it would have been without the advent of the sound film.

The sound film has been by no means enthusiastically received in Poland. To begin with, only a very small percentage of the Polish people understand English. The criticism is also generally made that the sound films so far exhibited have been lacking in artistic merit. The Poles have a highly developed artistic sense. It is the custom, when exhibiting a feature sound film in Poland, to cut out the dialogue completely, virtually making it a silent film with musical accompaniment and with subtitles in Polish.

Apart from the language difficulty, the majority of Polish cinema owners are restrained from installing sound-reproduction equipment because they can not afford it. A number of the leading owners in the large cities, however, are still waiting for the cost of the principal American makes to come down or hoping that a cheaper set of unquestionable quality will come on the market. Twenty thousand dollars or thereabouts for renting sound-reproduction equipment is a considerable amount for a Polish cinema proprietor.

No sound equipment is yet manufactured locally, and experiments so far made with French and German sets have not given satisfaction.

Apart from the perplexing situation caused by the entry of the sound film, owners of motion-picture theaters in Poland in general had an unsatisfactory financial year in 1929. They were greatly affected by the abnormally severe weather in the first three months of the year and later by the acute industrial depression. To compete with the talkies, many owners of silent houses are now offering vaudeville programs. This, of course, means an appreciable addition to their costs. The price of silent films also increased considerably during the year.

Polish feature films completed during 1929 totaled 12, as compared with a production of 14 in 1928. It is estimated by the trade that the average production cost per film in 1929 was in the neighborhood of $30,000, whereas in 1928 the average production cost was estimated at about $25,000. The following is a list of Polish completions during the past year, with name and address of the producing companies, all at Warsaw:

Mocny Czlowiek	Gloria, Marszalkowska 119
Szlakiem Hanby	Starfilm, Marszalkowska 125
Pod Banderą Milości	Lux, Jasna 24
9.25	Jarfilm, Nowy Swiat 19
Policmajster Tagiejew	Leofilm, Nowy Swiat 39
Kobieta Ktora Grzecha Pragnie	Bieganski, Krolewska 35
Moralnośc Pani Dulskiej	Heros, Jerozolimska 31
Halka	Wufilm, Sienkiewicza 12
Mascotte	Horodyski St. Didier Co., Mazowiecka
Z Dnia na Dzien	Enhafilm, Marszalkowska 125
Grzeszna Milość	Sfinks, St. Krzyska 35
Pierwsza Milość Kosciuszki	Bigoszt, Hoza 56

The following table shows the films imported into Poland, classified as to countries of origin, as reported by the Film Bureau of the Ministry of the Interior No figures are available for 1929

IMPORTS OF MOTION-PICTURE FILMS INTO POLAND

Country of origin	1924	1925	1926	1927	1928	Country of origin	1924	1925	1926	1927	1928
Austria	84	81	59	59	73	Soviet Russia	2	6	4	10	30
Czechoslovakia	2	3	1	13	6	Sweden	7	4	2	10	4
Denmark	18	8	19	17	15	United States	370	629	1, 043	1, 294	1, 443
France	180	283	175	274	250	Other countries	7	7	1	12	61
Germany	217	130	146	350	337						
Great Britain	17	4	8	33	58	Total	940	1, 189	1, 477	2, 082	2, 303
Italy	36	34	19	10	26						

No authoritative figures are yet available on the number of cinemas or the aggregate seating capacity There were, however, no completions of outstanding importance during 1929, and the trade estimates that the total seating capacity was increased but slightly during the year

The latest figures given in the Film Almanac, a trade publication, show a total of 861 registered motion-picture theaters in Poland, with an aggregate seating capacity of 200,000 to 225,000 Since many of these are small-town houses, the seating capacity is largely guesswork Moreover, it is estimated that not more than 30 per cent of the cinemas in Poland are open all the year, most of the small-town houses are open only occasionally during the week, while in holiday resorts, health resorts, etc , cinemas are open only for three or four months of the year

At the end of 1929 the following cinemas had been equipped with sound-reproduction apparatus Splendid, Warsaw, Palace, Lemberg, Swiatowid, Warsaw, Splendid, Lodz, Uciecha, Cracow, Tencza, Warsaw, Apollo, Lemberg, and Sztuka, Cracow

The following houses were being wired at the end of 1929 Atlantic, Warsaw, Colosseum, Krolewska Huta, Rialto, Kotowice, and Kino Miejskie, Bielsko

The Capitol cinema in Lodz and the Quo Vadis and Palace in Warsaw have experimented with French and German sound-reproduction equipment, but the results obtained, it is reported, were unsatisfactory

So far, only one studio in Poland is known to have been equipped for the production of sound films This is the Syrena studio on Wisniowa Street, Warsaw, owned by the leading gramophone record producer in the country It is the understanding that for the present the Syrena company will make only shorts

SWITZERLAND

By Henry E Stebbins, Clerk to American Commercial Attaché, Berne

The greatest change in the motion-picture situation in Switzerland since the opening of the first cinema was the inauguration on March 8, 1929, of the first talking picture This revolutionary development came late in Switzerland for several reasons, the language difficulty was by no means the least of these One-language projection is not sufficient in Switzerland This situation has been a problem in the silent pictures and is merely accentuated in the talkies The second contributory cause of the slowness in arrival of the sound film in the country is the policy of the general European film distributors, who look upon Switzerland as a market decidedly secondary in importance to such countries as England, France, and Germany. As a nonproducing country, Switzerland was a tempting market for left-over silent films, which accumulated rapidly after the first wave of popularity for the talkie was manifested in the United States. Finally, the Swiss theater owners and managers balked at the high price of sound installations. With the movie theater market frankly glutted, owners whose houses were rarely, if ever, packed did not feel justified in making large outlays for a development which they felt in many cases would not give them the necessary increased patronage.

However, with the opening of the Orient Theater in Zurich for sound projection in March, others followed at varying intervals. The Orient was equipped with the German Tobis sound apparatus. To-day there are 10 cinemas in Switzerland equipped to show sound films. They are, aside from the Orient which seats 700 persons, the Capitol in Zurich, seating 1,300 people, the Apollo, Zurich, seating 2,000 persons, the Alhambra, Geneva, seating 1,300, the Molard, Geneva, seating 670, the Capitol in Basel, seating 1,200, the Palace in Basel, equipped with the German Tobis Klangfilm apparatus and seating 500, the Flora in Lucerne, seating 380, and the Splendid-Place in Berne, seating 700. All those in which the equipment is not specifically mentioned have American apparatus.

Plans for wiring the Kapitol, Berne's newest cinema, have been postponed indefinitely on account of the expense. In spite of this handicap, the Kapitol continues to run feature films to large audiences. They are now showing silent versions of well-known American talkies. Doubtless this theater will be wired during 1930. The Bubenberg Theater in Berne, seating 900, will be wired early in the year.

Other plans for 1930 include the wiring of the Scala Theater in Zurich, seating capacity 1,100. This is a new theater, having been completed in 1929. Plans are also being made for the wiring of the Pax in Locarno, which seats 300. This letter is in the Italian-speaking Canton of Switzerland. Plans doubtless include the wiring of certain theaters in Lausanne, most probably the Moderne, although no information is definitely available on this point as yet. The Scala in Bienne was wired early in 1930.

Seven new cinemas were completed in Switzerland during 1929, while four were closed. The new theaters are the Picadilly in Zurich, seating 250, the Colosseum in Zurich, seating 350, the Lichtspiele in Bischofzell, seating 220 the Bel-Air in Yverdon, seating 650, the Kapitol in Berne, seating 874, the Scala in Bienne, seating 1,000, and the Capitol in Bienne, seating 1,200. The four theaters that were closed were the Eden in Zurich, with 350 seats, the Maxim in Zurich, with 600 seats, the Union in St. Gall with 270 seats, and the Klein in Schaffhausen. In addition to these, two cinemas with only occasional performances, the Excelsior at Binningen and the Seewadel at Bauma, were closed. The total net increased seating capacity was therefore only a little over 3,000. Three cinemas were reconstructed during the year, the Gottardo in Bellinzona, with 300 seats, the Palace in Lucerne, with 380 seats, and the Moderne in Lucerne, with 600 seats.

Arrangements have been made for the opening of seven new cinemas during 1930 They are to be the Lichtspiele in Schwanden, the Kino Leuzinger in Frauenfeld, and one each in Wattwil, Lugano, St Gall, Liestal, and Schaffhausen The Lichtbuhne in Zurich, now seating 450, will probably be enlarged during 1930

Several new companies have been formed during the past year for the promotion and sale of motion pictures in Switzerland From the American point of view the most important of these is the branch of an American distributor in Geneva Other new film-promotion agencies in Switzerland are the Cenflag A G, of Lucerne, with a capital of 70,000 francs, the ESA S-A, of Bienne, with a capital of 3,000 francs, and the Standard Cine-Photo A G, of Zurich, with a capital of 20,000 francs The Cie Generale du Cinematographe, which in 1928 was moved from Geneva to Zurich, increased its capital and plans some expansion, although the expected fusion with Emelka did not materialize

SWISS OPINION REGARDING SOUND FILMS

Differences in the professional and lay attitude toward the talkie have been wide After the first sound film was shown in Basel, the Basler Nachrichten, a large daily newspaper, conducted in its correspondence columns a forum on the future of the talking picture As comparatively few of the readers of the Nachrichten had had much of an opportunity to judge the talkies, the forum lasted only a few days What opinions were given, however, were, on the whole, unfavorable and immature As might be expected, the loudest cry came from those who felt that the language feature was the greatest handicap Up to that time, Basel audiences had had opportunities to see only American—that is English-speaking—films The demand, of course, was for German dialogue A few protests were made against the mechanics of reproduction, one correspondent claiming that the women's voices sounded like men's and the men's like bass drums

Those in favor of the talking film emphasized the musical aspects of the presentation especially songs and dances which the people could see were actually synchronized One difficulty which arises in Switzerland in respect to this question is the fact that actually synchronized pictures—that is, the so-called "100 per cent all-talking"—can not be shown in English versions In its stead must be shown silent pictures with a synchronized sound accompaniment, which, after all, is very similar to the old silent picture aided by an orchestra Short musical subjects, songs even though sung in English, have a great appeal, but there is undoubted irritation at the dialogue parts of sound pictures when the language is English

The opinion of the trade is, on the whole, decidedly favorable toward sound pictures Owners and managers realize that the talkie, like the radio, has come to stay For a large part they pin their hopes on the productions of the German and French studios At present the American sound picture rules the market, whether it will continue to do so is an open question If the German and French studios can produce sound films approaching the American product in quality, the Swiss public and theater owners will be satisfied. The solution, as far as the Swiss market for American producers is concerned, is to concentrate on musical comedies, operettas, etc, as well as high-grade musical short subjects The people will soon lose interest in the mechanical device as such and as displayed in sound synchronization of silent pictures What they want is the added realism given to the movies by actual synchronization If this is in the form of music and dancing they will flock to see it, but if it differs little from the old silent picture they will confer their patronage on talking pictures made by the Germans and the French

PUBLIC PREFERENCES

The general feeling is that the best films are American—which is natural, it is claimed, because most of the films shown are American Second in importance after American films are the German Certain German stars are immensely popular in Switzerland, at least in the German-speaking part, and there can be no doubt of the general popularity of German films It is usually the Germans who come into Switzerland to film Alpine pictures, such as the "Drama of the Matterhorn" and the "White Hell of the Piz Palu " French films are generally not popular One French talkie has been shown in Berne, but was by no means a great success A certain amount of English films are shown, but they are almost invariably poor The German version of the English talkie Atlantic however, had great success in Zurich

On the whole, the people like spectacles German romances are usually good drawing cards, as are American western pictures

PRODUCTION

Production in 1929 was even less than in 1928 The Schweizerische Schul und Volkskino turned out four pictures all silent and all having to do with the industries of the country They were on the dairy industry, horse breeding, cattle breeding, and the textile-machinery industry

The Helvetia A G , of Berne, reached its peak in the production of its first picture, Petronelle, which was produced in 1928 and for the production of which the Helvetia company was originally formed Since then it has declined noticeably In 1929 it made only two films, one of three reels and one of six The short picture was called Sport Rivals and was taken in the skiing fields of the Jungfraujoch and Murren The other, called the Path Through the Night, was made in England

The Praesens Film Co , of Zurich, made one picture as propaganda against the evils of alcohol The producers of this film felt that they had to go carefully in making the picture, for fear of offending the general public, and the result was rather ineffectual The Eggli Co made one film on rifle shooting in Switzerland

No sound films were made in Switzerland during 1929, for there are no studios equipped to make such productions In all likelihood, there will be no attempt made at such productions in the country during 1930

CENSORSHIP

Censorship is in the hands of the cantonal authorities, who exercise their right in a very liberal way A representative of the control board makes a weekly round of the cinema theaters, notes what parts of pictures he feels are objectionable, and advises the owner of the theater in a friendly way to cut out those portions Full cooperation is received from the theater owners, and as a result there is rarely any publicity in regard to censored films. The general public never knows when a film has been censored. Very rarely are whole pictures not allowed to be shown. Zurich and Lucerne are the two strictest Cantons. In Zurich, in 1929, 649 pictures were reviewed by the censors, and of these 644 were allowed to be shown, and only 49 of them were cut.

What amounts, however, to a very real censorship, although not a moral or political one, is the system employed whereby pictures are cut to conform to the demand for 2-feature pictures in a 2-hour show. Often pictures are so drastically cut that the continuity is ruined. Whole slices are taken out which are of the utmost importance to a clear understanding of the picture. It is true now, however, that this tendency to cut is being controlled in the showing of American talking pictures, which are of such length that it is manifestly impossible to show two features in one period.

AUSTRIA

By John A. Embry, American Commercial Attaché, Vienna

The salient feature of Austrian motion-picture situation during 1929 was the rapid conversion of silent cinemas into sound cinemas. During the year 23 cinemas in Austria were wired for sound films, of which 15 employed American sound equipment. According to the trade, the saturation point for sound-film equipment in Austria has already about been reached unless the price of sound equipment can be considerably reduced. Prospects for additional orders are said to be very poor with prices at their present level. Below is given a list of the cinemas in Austria which were equipped with sound apparatus during 1929, their location, seating capacity, and the type of equipment used.

AUSTRIAN MOTION-PICTURE THEATERS WIRED DURING 1929

Name	City	Seating capacity	Equipment
Burgkino	Vienna	393	American
Elite-Kino (K) Buehne	do	500	Do
Gartenbau Kino	do	500	Do
Tuchlauben Tonfilm Kino	do	400	Do
Schweden Kino	do	642	Do
Kino Lustspieltheater	do	1,100	Do
Atlantis Kino	do	600	Do
Apollo Kino	do	1,440	Do
Schottenring Kino	do	360	Do
Maria Theresien Kino	do	542	Do
Kolosseum Kino	do	708	Do
Mozartlichtspiele	do	440	Do
Votivparkkino	do	411	Do
Kino Handl	do	700	Do
Annenhof Kino	Graz	1,000	Do
Busch Kino	Vienna	1,923	Klangfilm
Ufa-Tonkino	do	1,038	Do
Haydn Tonfilmkino	do	620	Do
Lux Palastkino	do	800	Biophon
Ring Ton Kino	Graz	304	Do
Kino Eisenbahnerheim	Vienna	484	Selenophon
Kammerlichtspiele Mirabell	Salzburg	400	Marconi-Gefra (British Austrian)
Zentralkino	Wiener Neustadt	550	Astra-Ton (Austrian)

There were no new cinemas constructed in Austria during 1929, and according to trade estimates, the total seating capacity has remained unchanged

Nineteen feature films were produced in Austria during the year at a total cost of about 2,100,000 schillings ($300,000), which makes the average cost per film about $15,800   All of the films produced were of the silent type   Austria is not yet in a position to produce sound films for commercial purposes, and it is extremely doubtful if it will ever become a competitor in that line   There is only one studio in Vienna equipped to produce sound films (Selenophon), and that studio has not entered upon production of either sound shorts or features

The feature films made in Austria during 1929 were produced generally by persons more interested in the import permits received for their films than in the commercial possibilities of the film itself   It is not believed that the pictures produced possess sufficient merit to give them an appreciable market outside of Austria

In addition to the 19 feature films produced in Austria during 1929, there were also produced 160 shorts

The United States continued, during 1929, to supply the bulk of the feature films and shorts imported into Austria, as will be seen from the following table   Of the total number of feature films imported during 1929, 15 were sound films, of which 14 came from the United States and 1 from Germany   Silent versions did not accompany these films but will probably be brought in later

AUSTRIAN IMPORTS OF MOTION-PICTURE FILMS DURING 1929

Country of origin	Features	Shorts	Cultural films	Country of origin	Features	Shorts	Cultural films
United States	236	511	6	Switzerland	-------	1	2
Germany	162	272	31	Hungary	1	1	-------
France	12	106	3	Brazil	-------	3	-------
Russia	6	-------	2	Others	-------	1	-------
England	16	10	1				
Italy	-------	1	1	Total	435	906	49
Denmark	2	-------	-------				

Sound films have been well received in Austria, and most cinemas showing them have packed houses   In view of their extremely recent appearance in Austria, it is not possible to judge whether the novelty is contributing largely to that popularity   Practically every cinema in Austria of adequate size either is already wired for sound films or has contracted for such wiring in the near future   Some of the cinemas already wired have such a small seating capacity that it is difficult to see how they can prove a financial success   The need of larger and better-ventilated cinemas in Austria has long been felt, but there is little prospect of the situation improving in the near future because of existing unfavorable legislation regarding motion-picture concessions

Austrian motion-picture production plans for 1930 are very vague, and the production situation will doubtless undergo little change

The number of film import permits issued in 1929 for each approved film produced in Austria during 1929 was 22   By a regulation of the

Ministry of Commerce,[2] published recently, the issuance of film import permits up to August 31, 1930, will be as follows

	Licenses
APPROVED AUSTRIAN SILENT FILMS PRODUCED DURING JANUARY, 1930	21
FROM FEBRUARY 1 TO AUGUST 31, 1930	
Entirely Austrian-made silent films costing at least 60,000 schillings	13
Films produced wholly or in part in Austria on the production of which at least—	
Seventy thousand schillings was spent in Austria	15
Eighty thousand schillings was spent in Austria	17
Ninety thousand schillings was spent in Austria	19
One hundred thousand schillings was spent in Austria	21
Sound films produced entirely within Austria shall receive a bonus in excess of the above schedule of	10

For the application of the last clause, sound films are defined as follows "By sound films is meant those films whose accompanying music, noises, song, or speech is recorded on the film ribbon or on records in such a manner that by mechanical means they can be synchronously reproduced "

The above regulations apply only until August 31, 1930, at which time the whole question of artificial trade restrictions will be revised in accordance with the Geneva Convention of 1928

HUNGARY

By Walter M Slavik, Assistant Trade Commissioner, Budapest

No new motion-picture theaters were built in Hungary during 1929, the number of cinemas, therefore, remained at 524 and seats at 180,049

Enlargement by 600 of the seating capacity, of the Urania theater, Budapest, was started in 1929 Two weeks before its expected opening (February 1, 1930) it was severely damaged by fire, necessitating its entire reconstruction No other reconstruction is reported in 1929

The following cinemas were equipped with sound apparatus in 1929

HUNGARIAN THEATERS WIRED FOR SOUND FILMS IN 1929

Theater	Location	Seating capacity	Apparatus
Forum	Budapest	780	American
Royal Apollo	do	1,010	Do
Decsi	do	651	Do
Capitol	do	624	Do
Jozsefvarosi	do	650	Do
Wekerle	Kispest	1,100	Do
Apollo	Csepel	734	Meitner-Philips
UFA	Budapest	711	Klangfilm
Corso	do	319	Do
Olympia	do	270	Gaumont
Vesta	do	267	Vestaphone
Imperial	do	564	Edibell [1]
Omnia	do	585	
Do	do	585	Gerard [1]
Orion	do	320	

[1] The 2 theaters have the 1 apparatus in common, alternating its use

In January, 1930, sound apparatus was installed in the Pfulumm Theater, seating capacity 1,200, in Pesterzsebet, a suburb of Budapest Sound apparatus was planned for 1930 by seven other theaters, with a combined seating capacity of 3,782

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[2] The text of the regulation is given in the appendix of this bulletin

The Corvin, the largest theater in Budapest (capacity, 1,217), also plans installation of Klang film apparatus very shortly The Urania had planned a similar installation before its burning Plans for reconstruction and sound installation are now entirely unsettled

The following feature films were started in Hungary in 1929: Kossuth, or Spring in the Storm (Tavasz a Viharban), A Bird in a Cage (Rabmadar), There is Just One Girl in the World (Csah egy hislany van a vilagon), and Eternal Love (Orok szerelem) These films, all of which were silent, cost an estimated total of 390,000 pengos ($68,250), an average of about 100,000 pengos ($17,500)

Kossuth was produced by Steinhard-Szekeres, A Bird in a Cage, by Zsabka, Kalman, There is Just One Girl in the World, by Gal, Bela, Eternal Love, by Bethlen-Lazar

The producers make their sporadic attempts in the rented studios of the Hunnia or Star companies, the only legitimate production companies in Hungary at present No studio in Hungary is yet equipped for sound production

Hungarian authorities censored 1519 films of a total length of 1,797,667 meters during 1929 Of these, 786 films of a length of 938,670 meters were American, 293 of 487,033 meters were German, 253 of 103,205 meters were Hungarian, 83 of 78,840 meters were British, 52,000 of 87,800 meters were French, 24 of 43,331 meters were Austrian, and 28 of 58,787 meters were from other countries The 18 sound films censored in 1929 came from the United States and Germany

The most interesting feature of 1929 affecting the motion-picture industry was the issuance of a governmental decree[3] providing that for every film produced in Hungary above a certain length and whose production cost was above a certain sum would be granted 20 censorship certificates Every foreign-produced film requires one of these censorship certificates before it can be censored The distributors of American films were able to have most of their films for the coming season censored before the decree went into effect, but a few certificates were required, about $265 each being charged for these certificates

With the introduction of sound films in the fall of 1929, the film business picked up considerably The last months of the year witnessed an economic depression and a general lowering of the buying power of the public This adversely affected the theater business, and theater owners are complaining of poor attendance, while distributors report they are having difficulties in sales and collections

As in previous years, American films remained by far the most popular and in greatest demand

Generally speaking, the trade expects the sound films, now that they have been introduced, to show the same rapid ascendancy as in the United States Theater owners with sufficient capital prefer the sound films, as they make more money from them, but poorer owners in Budapest and the Provinces are disinclined to move until they must However, lack of capital is the chief impediment at present The striking success of Hungary's first sound picture has convinced most theater owners they they must add sound equipment or lose their patronage Most of them, however, are inclined to restrict their outlay as much as possible and to install cheap apparatus which, regardless of quality, gives them the right to advertise sound performance All the larger provincial houses and second and third run houses desire sound equipment Quite a few have already made moves in that direction

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[3] The text of the decree is given in the appendix of this bulletin

No concrete plans for sound-film production have yet been formed, but the manager of the Hunnia Film Co has declared himself in favor of equipping his studio for making sound pictures

At present contingent licenses for feature films cost both American and foreign distributors 1,500 pengos ($265) each In addition they must pay 20 fillers ($0 035) per meter to the films fund and 7 fillers per meter for censorship, In contingent tickets, four short films are regarded as the equivalent of one feature film

According to distributors, motion-picture business is good in the capital and other large cities, especially in sound-equipped theaters, but poor in the rest of the provincial cities Over 100 houses are reported behind in their rental payments

SPAIN

By Julian C Greenup, American Trade Commissioner, Madrid

The outstanding feature in the Spanish motion-picture trade during 1929 was the introduction of sound films Several important theaters in Madrid and Barcelona installed equipment and presented sound films toward the middle of the year, and at its conclusion Bilbao, Zaragoza, Valencia, and Sevilla had either secured equipment or taken definite steps toward that objective The public was enthusiastic upon hearing the first sound films, and the theaters were well filled during the first few weeks Interest subsequently decreased, and there was noticeable impatience, owing to the inability of the masses to understand the foreign languages used The opinions of a number of authorities agree that foreign-language sound films have passed the peak and that the future success of sound programs in Spain depends upon the use of the Spanish language

At the beginning of 1930 sound equipment was in operation or definitely decided upon by the following theaters

	Make
Madrid	
Callao	American
San Miguel	Do
Palacio de la Musica	Do
Real Cinema	Do
Monumental	Do
Royalty	Melodion
San Carlos	American
Cinema Espana	Do
Barcelona	
Coliseum	Do
Tivoli	Do
Paris Cine	Gaumont
Femina	American
Bilboa	
Coliseo Albia	Do
Buenos Aires	Do
Zaragoza	
Cine Alambra	Melodion
Quintana y Cia	Syntax
Sevilla	
Llorens	American
Valencia:	
Olympia	Do

Other makes of sound film equipment are on the market, but as far as is known no sales have been made The principal ones are the Zeiss-Ikon, based on German and British patents and the Electro-Vox line

DISTRIBUTION

The subject of distribution may be described more accurately by following the "temporada," or season, which is from September 1 to August 31, rather than the calendar year The 1928–29 season was exclusively of silent films For the 1929–30 season distributors have brought in very close to 500 feature films, or about 100 less than for the previous film year Approximately 75 per cent, or 375 films, were of American origin, 50 were German, 40 French, 15 British, and 20 Italian, Swedish, Danish, and others Around 125 were sound films (music effects, talking, etc), and the United States supplied not less than 120 of that number One German and one British sound film have been mentioned as the only non-American products of importance From 90 to 95 per cen of the sound films were accompanied by silent versions

DOMESTIC PRODUCTION

Local film manufacturing may not as yet be described as an industry Numerous persons and firms are listed as producers, but few are equipped for complete production Several successful films purporting to have been of Spanish origin are said to have been made in whole or in part in France and Germany, and in other cases it is not known exactly where or how manufacturing is accomplished It appears, however, that from 20 to 25 feature films were completed in Spain during the year, and 3 of them involved sound Little progress has been made in the production of sound short subjects

The average cost of domestic films is about 100,000 pesetas ($19,300), with 50,000 and 200,000 pesetas as limits for 1929 As to studios, among more than 20 advertised, it would appear that the only ones which have produced regularly over a reasonable period of time are Madrid Film (Enrique Blanco, owner), Carrera de San Francisco 4, and Omnium Cine (Emilio Sanz Cruzado, owner), Bravo Murillo 26, both of Madrid These two companies report their total investments in equipment as 600,000 and 150,000 pesetas, respectively Laboratories suitably equipped for developing, cutting, title making, etc , are operated by Madrid Film, mentioned above, and Trilla, S A , Rosellón 255, Barcelona Fifteen other laboratories purport to be functioning

Prospects for production in 1930 indicate that few additional films over the 1929 figure will appear However, a greater proportion of sound films are anticipated, along with an improvement in the quality of both kinds It is doubtful that additional studios will be equipped with sound apparatus

La Sociedad Patria Films, Paseo del Prado 14, Madrid, is reported to have been formed with a capital of 2,000,000 pesetas for the purpose of manufacturing sound films by the patent of Jose Luis Fernandez Ayuso, which consists of a synchronizing apparatus using a disk and loud-speaker and requiring no special projector The company plans to produce two sound films in the near future, to be called "La Patria Chica" and "Isidrin, o las Cuarenta y Nueve Provincias '

No other studio is known to be equipped permanently with sound apparatus

The following more or less successful films were produced in Spain during 1929

1 L'Auca del Sr Esteve, produced by Trova Film Cia , Princesa 19, Madrid
2 Claveles de la Virgin, Florián Rey, director
3 Zalacain, el Aventurero, said to have cost about 250,000 pesetas
4 Hollywood Madrilena
5 Viva Madrid que es mi Pueblo, produced at the end of 1928 and released in 1929 by Madrid Film The low cost of this film, 125,000 pesetas, resulted from the free services of the famous bullfighter Lalanda, who was connected with the film It is said to be the best Spanish production and to have rendered a net profit of 300,000 pesetas Directed by Fernando Delgado
6 El Tren, produced by Julio Cesar, S A , Marqués de Urquijo 13, Madrid
7 La Copla Andaluz, produced by Madrid Film, director, Ernesto Gonzalez
8 El Rey que Rabio, Madrid Film, José Busch, director
9 El Guerillero Juan Martin, el Empecinado, Madrid Film, José Busch, director
10 El Suceso de Anoche, Leon Artola, director
11 El Heroe de Cascorro, Emilio Bautista, director (Distribution prohibited because it dealt with wars in Cuba before the Spanish-American war)
12 El Misterio de la Puerta del Sol, a synchronized sound film produced by D T M Vitores and directed by Francisco Elias Not especially successful, probably because of insufficient experience in sound-film production
13 Futbol, Amor, y Toros, a sound film synchronized with disks, directed by Florián Rey
14 El Sexto Sentido, Nemisio Sonevila, director
15 Gloria, produced by Omnium Cine, Adolfo Aznar, director
16 Sugestion, Arturo Beringola, director
17 Esperanza, Jose Ruiz Miron, director (practically finished)
18 La Alegria que Pasa, Sabino A Micon, director (almost finished)
19 El Gordo de Navidad, Madrid Film, Fernando Delgado, director
20 48 Pesetas de Taxi, Madrid Film, Fernando Delgado, director
21 Estampas Espanolas, synchronized sound with disks

THEATER CONSTRUCTION

Ten new motion-picture theaters are known to have been constructed during 1929, six of which were in Madrid Europa, 2,500 seats, Metropolitano, 2,500, Castilla, 900, Delicias, 2,000, San Carlos, 2,000, and Palacio de la Prensa, 1,000 A new theater with 1,800 seats is being constructed on the Avenida Reina Mercedes in Sevilla The aggregate seating capacity is estimated at 15,000, or an average of 1,500 each

At the end of 1929 not fewer than 300 motion-picture theaters were functioning daily and 1,740 irregularly In addition to these, about 1,035 literary and vaudeville theaters were showing motion pictures occasionally Moreover, from 250 to 300 other amusement places, as bull rings, football fields, schools, hotels, cafés, and clubs, were using films during certain seasons of the year The Anuario del Cinematografista for the 1928–29 season published the names of 3,357 theaters or amusement places showing films

From 100 to 150 theaters have been reconstructed as a result of the fire in the Novedades theater in Madrid Little additional seating capacity was added, however, as the reforms consisted chiefly in metal screening for fire protection

There is no set policy as to wiring Most operators seem to be unconcerned, or at least awaiting the lead of foreign developments

LEGISLATION

There was no important legislation in 1929 against the importation or projection of foreign-made films or motion-picture equipment One unsuccessful attempt was made by a firm possessing patent rights to prohibit the exhibition of sound films manufactured by competing equipment, and throughout the year there were numerous press rumors concerning legislation to restrict film imports and to levy special taxes for stimulating domestic production In March a commission was appointed to study the industry, but its findings have caused no new legislation At the end of the year the situation remained unchanged, and the trade anticipates no important legislation in 1930 affecting the foreign trade

During the year American film prestige not only held ground but increased

PORTUGAL

By J L Pinkerton, American Consul, Lisbon

During 1929 six new movie theaters were constructed in Portugal, their combined seating capacity being 5,100 Two smaller cinemas were reconstructed No cinemas in Portugal are equipped with sound apparatus, and it is not expected that it will ever be generally used There is a rule of the Portuguese Government that no foreign language, not even one phrase, is to be used in the titles of silent films or speech of sound films

Three films, all silent, were produced in Portugal during 1929, one of 4,000 meters costing about 100 000 escudos ($4,500), one of 4,000 meters costing about 90,000 escudos ($4,000), and one of 600 meters They were produced by Lupo Film (Lda), of Oporto About 235 one-reel films showing Portuguese scenes and events were produced

During the year 1,059 films of a total of 1,163 268 meters were censored and passed, only one film having been rejected These films were of various origins, as indicated in the following list American, 545 films of 710,848 meters, French, 150 films of 134,286 meters, German, 90 films of 198,455 meters, Portuguese, 239 films of 61,845 meters, all others, 35 films of 57,833 meters

The outlook for motion pictures remains good, and it is understood that attendance in 1929 was greater than during the preceding year American films are still in good demand, but the competition of German films is making itself felt The few Russian films imported have made a very favorable impression, and their number is expected to increase The language rule of the censorship hampers the introduction of such films, as some Russian phrases and terms can not be adequately translated into Portuguese

It is rumored that one theater will experiment with sound films toward the end of 1930 However, this will be confined to musical films, as dialogue is considered impossible If this theater does install sound equipment, it will use that of European manufacture, as American equipment is considered too expensive It is explained that cinema owners can hardly afford a large investment in equipment as long as the custom of opening the cinemas only from 9 p m to midnight prevails With two matinées, the total exhibitions per week are only nine, whereas the average in an American city is over 30 Furthermore, the public will not pay big prices for tickets The maximum price for a single seat in the best cinema in Lisbon is equivalent to $0 44 United States currency, and the average about $0 30 These prices include the tax which works out at from 12 to 15 per cent of gross receipts for the better cinemas and more for the cheaper houses

YUGOSLAVIA

By Stewart E McMillin, American Consul, Belgrade

The following cinemas in Yugoslavia were equipped with sound apparatus during 1929

Belgrade		
	Kolarac	American
	Luxor	Do
	Kolosseum	Do
	Kassina	Do
	Korso	Klangfilm
Zagreb		
	Olympia	American
	Musical	Homon (French)
	Croatia	American
	Edison-Palace	Do
	Europa-Palace	Do
Sarajevo	Apolo	Do
Ljubljana	Matica	Not known
Novi Sad	Apolo	American
Subotica	Korzo	Not known

There is no important commercial production of films in Yugoslavia Only notable events, such as great disasters, activities of the King and his troops, various festivities, and the like, are filmed Neither large feature films nor even ordinary 5-reel films are produced The principal distributors have laboratories where Serbian (Cyrillic characters) and Croatian (Latin characters) texts are inserted for films imported

It is difficult to state how many feature films were censored during 1929 It is believed that 60 to 65 per cent of them were American Information regarding the proportion of other countries is not available, but in the Belgrade consular district it is approximately 35 per cent It is not known how many pictures censored were made with sound, but thus far only one picture which may be called truly a sound picture has been shown in Belgrade That picture, of American origin, appeared early in January, 1930 There have been other so-called sound pictures, also American for the most part, which really consisted of bits of dialogue here and there and occasionally a song or orchestra music All these films had a silent version in Serbian

The year 1929 was a very bad one for the film trade, but increased interest was noted toward the end of the year when sound film was introduced, first in Zagreb then in Belgrade The American sound films are now the only ones on the market, and American prestige in this regard has greatly increased by the fact that America was the first to introduce sound films into the kingdom With the exception of one Homon and one Klangfilm apparatus, all sound apparatus has been of American origin

It is now generally recognized in Belgrade that no cinema can long continue its business unless equipped with sound apparatus The public is enthusiastic, although, as indicated above, most of the sound pictures introduced have merely had bits of dialogue and music and would probably have been total failures in the United States. In many cases the synchronization was poor, yet the small local theaters were crowded, as everyone wished to hear a sound film.

Cinemas have been crowded to such extent that owners seem not to regret having invested considerable sums of money in the purchase and installation of sound apparatus They appear to be optimistic regarding the future of the sound film and appear to believe that by the end of 1931 silent films will have completely disappeared in Belgrade

There appears to be no movement toward the equipment of theaters with sound apparatus outside Belgrade and Zagreb, as the small theaters in the villages and other towns do not possess sufficient funds to purchase such equipment Naturally, there is no production of sound pictures in the country and will not be for some time

No studio expansions are contemplated

There is no legislation contemplated of a nature inimical to the interests of American films

GREECE

By Ralph B Curren, Assistant Commercial Attache, Athens

With the exception of one new 450-seat theater constructed in Saloniki, no new cinema theaters were built or converted from other places of amusement during 1929 In the city of Athens not only were no new theaters constructed, but a first-run 800-seat theater the Mondial, was converted from a cinema house to a musical comedy and revue theater

In October, 1929, two of the first-run theaters in Athens Atticon, and Ideal, completed their installations for sound-reproducing equipment These were the first cinema theaters in Greece to be wired for the showing of sound films The equipment used in these theaters is of American make The seating capacity of Atticon is about 1,500 and that of Ideal about 1,100 In addition, the Pantheon, a first-run 750-seat theater in Athens, installed later in the year a Syntok (British) sound-reproducing apparatus but the equipment has not worked satisfactorily, and the distributors of sound films have refused to allow the theater to show their films

In Piraeus only one theater, High Life, was wired toward the end of 1929 The equipment installed is of American make This theater has an estimated seating capacity of about 600

The only other Greek city in which sound equipment was installed during 1929 is Saloniki The installations in Saloniki at present consist of the following Pathé, seating 900, American equipment, Dionyssia, seating 850, and Palace, seating 850, both Tobis-Klang (German)

During 1929 only two films, Bora and Astero, were produced by the Dag Film Co of Athens The latter was shown with considerable success for two consecutive weeks in one of the first-run houses in Athens and later throughout the entire country Both films were silent, as Greek producers have no facilities for producing sound films Although exact figures are not available, it is not believed that these films cost more than $2,500 to $3,000 each to produce In addition, production was started on two other films during 1929, Far from the World, by the Olympia Film Co , and The Apaches of Athens, by the Dag Film Co The first was completed early in 1930 and shown in Athens

As can be seen, the Greek film-producing industry is still in its infancy, and, judging from the little progress made in the last three years, it will be a long time before it acquires sufficient importance to command any public attention outside of Greece

Trade statistics indicate that during the 1928–29 theatrical season, from October, 1928, to May, 1929, 130 feature films and 80 serials were exhibited in Athens Inasmuch as all films are usually first shown in Athens and then in the provincial cities, this figure may be applied to the whole of Greece as well All the serials were American, but it is estimated that not more than 40, or about 30 per cent, of the feature films were American, the balance being mostly of German or French origin

As there were no sound-reproducing installations in Greece during the 1928–29 theatrical season, no sound films were exhibited in that period Between October and December, 1929, however, which period falls into the 1929–30 season, about 10 feature sound films were shown by the two Athens theaters which were wired for sound films Only one of these sound films was French, Le Quartier Latin, the rest were all American

The scarcity of good American silent feature films began to make itself felt in 1929 This was one of the reasons why Greek theater managers had to turn to European producers for filling their requirements as long as they had no facilities for exhibiting sound films The installation of sound apparatus in the early part of the 1929–30 season, of course, changed the situation, and as the number of wired theaters increases, the demand for American sound films is bound to increase also However, there are some serious obstacles to be overcome which may tend to retard the expansion of the use of sound synchronized and especially of dialogue films in Greece

One obstacle is the high initial cost of wiring a theater There are, of course, lower-priced equipments, but theater owners hesitate to order and install these systems for fear of not being able to obtain films from the local distributors of American sound films, who have agreed among themselves not to allow films to be shown on any equipment except the best-known American systems until trials are made and the apparatus in question proves to reproduce satisfactorily Owing to the heavy Government taxation, the cinema business is not a very lucrative enterprise in Greece and, therefore, no matter how moderately priced a sound installation may be, it will be beyond the reach of the bulk of the provincial theaters for several years to come and until general conditions improve

There is also the difficulty of language At the present time silent films are shown with subtitles in Greek and French, but this principle can not, obviously, be carried out with dialogue films A striking example of this is the fact that a talking film which was a tremendous hit in the United States and other countries scored no great success when exhibited in Athens, primarily because the bulk of the population could not understand the words

In spite of these difficulties, it seems to be the general opinion that next year the majority of the theaters in Athens and several more theaters in Piraeus and Saloniki will be wired for sound films, if only for fear of not being able to secure satisfactory silent films It is also believed that in the course of 1930 at least one theater will be wired at Volo and two at Patras

A trial made in Athens with a more or less improvised Pathé sound-reproducing apparatus in one of the so-called "popular" theaters (which run serial and Wild-West films) proved unusually successful as far as both receipts and interest among the audience were concerned, and for this reason it is not unlikely that during 1930 some of the second and third class theaters may be wired for sound films

It is difficult to say whether or not the sound film has thus far met with success in Greece The trade is divided in its opinion It might safely be stated that it is the sound rather than the dialogue film that will eventually become more popular in Greece as without requiring any special knowledge of the language of the players it adds, by its sound effects and musical accompaniment, a great deal of interest to the film As regards the installation of sound studios in Greece, there is no such project in view for the time being

RUMANIA

By Sproull Fouché, American Commercial Attaché, Bucharest

There were only four films exclusive of educational features produced in Rumania during 1929 Their estimated average cost was 800,000 lei ($480) each

There was only one coalition for joint production effected during the year, which was between the Martin Berger Film Co , of Berlin and the Rumanian Ministry of Foreign Affairs The film in question is a feature known as Sturmflut der Liebe (The Torrent of Love) and is based on a celebrated Rumanian novel The actors were German and Rumanian, and the Ministry of Foreign Affairs financed the production to the extent of 50 per cent for propaganda purposes

There were four new cinemas constructed during the year, one in each, Czernowitz, Galatz, Jassy, and Ramnicul-Valcea, while six cinemas were renovated and enlarged in the Provinces No new cinemas or conversions into cinemas were effected in Bucharest during the year The total increased seating capacity is 5,000 seats

The installation of sound equipment in the Trianon theater in Bucharest in October, resulting in the introduction of American talking films to the Rumanian public, has been such a success that a widespread interest in this type of equipment has been manifested by exhibitors all over the country

Two additional Bucharest houses, the Regal and Capitol, have installed synchronized-disk equipment, the former being a Gaumont Chronophone and the latter a Bio-Multiphone-Standard In the city of Galatz the Odeon Theater has just completed the installation of an American equipment The Trianon Theater in Galatz is also considering the use of sound equipment

According to the estimate of a leading authority on Rumanian cinema matters, 300 American features were brought into the market during 1929 No statistics showing the participation in the film market by countries is available, but according to the indication of a member of the commission of film censors, 150 films were German, 15 Austrian, and a total of 35 films were of French, Italian, Danish, Russian, and English origin As mentioned above, America is by far the largest supplier

No special laws inimical to the interests of the American industry were passed during the year, but increased taxation on amusements and a special censor tax of 2 lei ($0 012) per meter on film censored are causing dissatisfaction in the film trade

Although there are at present only five theaters in the entire country with sound-projection equipment, it is estimated that approximately 50 or 60 additional installations will be made in the first six months of 1930

Silent films with orchestra synchronization have not proved popular, and in view of their relatively high rental rates, it is unlikely that distributors will undertake the further importation of them

Films meeting with the greatest popular favor are those with singing and dancing There has been no objection to English dialogue in pictures of this type, in spite of the fact that it is not understood by perhaps 98 per cent of the audiences Where the dialogue has a vital bearing on the plot it is translated into Rumanian and run as a subtitle However, distributors are considering the importation of sound-film musical features, so that extensive dialogue can be cut out entirely without losing musical continuity

TURKEY

By John T Harding, Assistant Trade Commissioner, Istanbul

During 1929 four new motion-picture theaters were built in Turkey Three of these, modern in every respect, are located in the capital, Angora, where until recently films were being shown in improvised buildings These new houses were Turk Ocagi, Angora, seating capacity 500, Evkaf, Angora, seating capacity 650, Turk, Angora, seating capacity 1,350, and Samsun, Samsun, seating capacity 500 Except perhaps in a few small interior towns, on which data are not available, no reconstruction was undertaken during 1929

The building and reconstruction program for 1930 calls for a new theatre to be named the Capitol, with 1,000 seats, and the improvement and enlargement of the existing Luxemburg from 450 to 1,800 seats Both houses are in Istanbul

Two cinemas, both in Istanbul, were equipped with sound apparatus during the latter part of the year, and both made their initial showing of sound films in October They have American sound apparatus They were the Opera, with a seating capacity of 1,250, and the Alhambra with a seating capacity of 750 Only synchronized films are shown

Plans for 1930 indicate that the following theaters will be equipped with sound apparatus

TURKISH THEATERS TO BE WIRED FOR SOUND FILMS IN 1930

Name	City	Make	Seating capacity
Alhambra	Smyrna	American	650
Melek	Istanbul	do	1,000
Kulup	Angora	do	600
Alkazer	Istanbul	do	650
Majik	do	Probably Tobis	1,250
Capitol	do	American	1,000
Luxemburg	do	Not settled	1,800
Turk Ocagi	Angora	do	500
Turk	do	do	1,350
Sakarya	Smyrna	Melovox	450
Lale	do	do	450

Turkey is not a film-producing country, until 1929 only eight films had been produced There are no studios, and interior scenes are filmed in "dressed-up" locations During 1929 two silent films, the Ankara Postası (Angora Mail) and the Kacakcılar (The Smugglers), were undertaken by Ipekdji Bros , one of the country's important exhibitors and distributors The first was completed and shown in Istanbul, Angora, and Smyrna Work on the other was suspended after a fatal accident occurred in one of the scenes If both films had been completed, the average cost of the two would have been about 10,000 pounds ($4,800) each

During the year 222 feature films were released, 12 of them sound films All of the sound films were of American production Of the silent films, 80 per cent were American, 11 per cent German, and 8 per cent French Only two sound films were imported with a silent version

In spite of the fact that motion pictures offer the only kind of entertainment and recreation available in Turkey to the general public, except, of course, in a few of the larger cities, such as Istanbul, Angora, and Smyrna, the general condition of the picture business during 1929 was bad as compared to previous years The poor attendance was a reflection, no doubt, of the unfavorable conditions which prevailed in all lines of business and the lower purchasing power of the public In general, however, the exhibitors did not lose money, but their profits were too small to free them from worry In the case of Istanbul the situation of the silent houses became worse toward the end of the year, following the equipping of two theaters for sound reproduction It is estimated that the attendance of the silent houses fell off 30 to 40 per cent, while the two wired houses drew larger crowds and increased their prices.

American film prestige maintained itself during the year and even rose to a higher level There were more American films imported during the year than in 1928, and German, French, and Italian films lost out in this competition It is believed, however, that with the advent of the "talkie," 1930 will see this popularity on the wane As is the case in most of the near eastern countries, French is the foreign language with which more of the population is conversant Therefore, greater enjoyment is felt by a greater number of people from a French "talkie" than one in English or German

The consensus among distributors is that American silent films will continue to be as popular as in previous years and that sound films without dialogue will successfully compete with similar films made in European countries, but that the appeal of the French "talkie" and musical films will be greater than the same class of American films

At the present time, there is no indication of the adoption of any legislation in connection with the motion-picture industry The installation of sound-film reproduction equipment on a lease basis offers certain difficulties. This was undertaken by an American company, which found it received the status of a foreign company doing business in Turkey and is accordingly obliged to register, maintain an office, and keep books there At present it is impossible to foretell on what basis the income from this equipment will be taxed and whether depreciation in the value of actually installed equipment will be allowed by the fiscal authorities

RUSSIA

By George R Canty, American Trade Commissioner, Paris

Though it is difficult to judge the actual state of the motion-picture industry in Soviet Russia, it would appear from reports of the German trade press, which usually is the best source of information on the subject, that business there is in a state of stagnation The sound film can not alone be held responsible for that condition Public demand being rigorously controlled by the Government, the Soviet Union could well afford to ignore new developments altogether and continue to use the silent film Exports, on the other hand, have certainly been badly affected by the advent of the sound film, which excludes the silent Soviet product from lucrative foreign play dates Prospects for the Soviet film on foreign markets, therefore, seem to be none too bright

As the Soviet film is reported to be becoming more and more scarce on the market (only 98 films are reported to have been produced during 1929), it is difficult to judge of what is going on within Russia, particularly what progress has been made on film construction and development plans Another indication that film activity in Russia is slack is the fact that several leading directors are at present traveling abroad There is no doubt that Soviet film men have also been considering the sound and talking film, and a Russian process is said to be in a stage of development

It is authoritatively reported that Soviet films fail to yield good profits in Russia, and that whatever exhibition profits have been recorded are entirely due to the exploitation of foreign films American films are reported to be purchased from time to time by the Soviet film interests at very low prices Reliable film merchants claim that the possibilities of profitable distribution of American features in Soviet Russia would be great with efficient handling and the absence of governmental interference

APPENDIX

AUSTRIA

FILM CONTINGENT REGULATIONS

CONTINGENT QUOTA, 1929

By decree No 107 384–9/L, dated December 24, 1929, the Austrian Federal Ministry of Commerce and Transportation placed the contingent quota at 1 to 22 (21 for every approved film produced in Austria for which less than three copies have been made in an Austrian film-reproducing studio) for 1929 The provisional permits issued on the strength of the increased contingent quota are valid until March 31, 1930

CONTINGENT REGULATIONS FOR 1930

In accordance with the above-mentioned decree, the contingent regulations for 1929 apply also to the month of January, 1930, except that the contingent quota for approved films produced in Austria is fixed at 1 to 20 (19)

APPLICATION OF THE FILM CONTINGENT

I (1) Pictures for cinematographic display (exposed films falling under Tariff No 307a–1) destined for public display can be imported into Austria only on the strength of a special permit

(2) Such permits are issued by the film bureau of the Vienna Chamber of Commerce, Trade and Industry, upon instructions from the Federal Ministry of Commerce and Transportation, and, as a rule, these permits must be secured at the time the film is intended for public display, the permit is granted after hearing the opinion of a committee of experts (Filmbeirat) that studies the question of granting admission into Austria from economic viewpoints

(3) The present regulations apply equally to sound films, not however, to cultural and educational films The term "sound film," in the sense of these regulations, applies to films whose accompanying music, songs, speeches, or other noises are rolled off synchronously by a mechanical device, either from a film strip or a gramophone record So-called "record" sound films are classified as such, in the sense of these regulations, only in cases where the records have been specially prepared for the film in question A set of selected, normal gramophone records, serving an accompaniment of a film, does not count as sound film accompaniment Cultural films deal with sections of civilization in one or more regions in motion pictures, with or without text, and mostly with musical accompaniment Motion pictures may be classified as cultural films, even if persons appear in it, providing that the actions performed by these persons merely serve the purpose of illustrating an occupation Educational films differ from cultural films by the uniformity of the subject treated, the absence of accompanying music, and the prominence given to the accompanying text

II The Federal Ministry of Commerce and Transportation determines, from time to time, the number of foreign films to be imported for every film produced locally

III (1) The committee of experts (Filmbeirat) is composed of 1 representative from the Federal Ministry of Commerce and Transportation, 2 representatives of the Austrian Film Board, 2 of the Vienna Chamber of Commerce, 2 of the Chamber of Labor in Vienna, and of a number of honorary representatives, namely, 3 representing the interests of the film producers, 4 of the film distributors, 5 of the motion-picture theater owners and 5 of film workers A substitute must be appointed for each one of these representatives

(2) The members of the committee of experts are appointed by the Minister of Commerce and Transportation The representative of the film workers is nominated by the Vienna Chamber of Labor The other representatives of interested parties are nominated either by the Vienna Chamber of Commerce or by their respective organizations The Minister of Commerce and Transportation is authorized at any time to request the resignation of a member

(3) The representative of the Ministry of Commerce acts as chairman of the committee or else he may appoint any one member to take his place The presence of at least six members of the committee constitutes a quorum, and judgment is passed by majority In cases of doubt decision rests with the chairman The business and legal agenda of the committee is handled by the Vienna Chamber of Commerce, Trade and Industry

(4) At special request representatives of the provincial governments may be invited to attend the sessions of the committee, but they are not permitted a a vote Likewise, the secretaries of the trade organizations in the film industry may be admitted to the sessions, but these too have no vote

IV Approval for admission into Austria of foreign films comprises the following inquiries

Examination of locally produced films destined to serve as a basis for fixing the import contingent, so-called "Stammfilme" For this purpose only normal feature films—that is, program filling films—come into consideration These are examined by the committee along certain lines and may be described by them as "valid for a contingent" Missing or unlikely statements concerning production costs may be replaced by estimates made by the committee Under no circumstances will the activities of the committee be in the nature of police censorship, formerly practiced

Inquiry as to whether or not a film shall be classified as a domestic production

Inquiry as to classification of a film as short comedy, grotesque film, trick film, news item, and so forth

Decision, in questionable cases, whether a film shall be classified as cultural or educational

The committee may appoint subcommittees from its circle to study individual questions, and it may consider the decisions reached as final if they have been adopted with a three-quarter majority

V (1) Permits granted for a film simultaneously apply to all copies, barring possible special regulations If a film appears in two or more program filling parts, each part will be permitted to count as one film

(2) The producer or purchaser of a domestically produced and approved film (see Point IV, section 1) is granted preliminary permits (Vormerkscheine) for the number of import licenses decided on These preliminary permits can be passed on to film distributors and form the basis for the issue of import licenses Locally produced films can only serve once for the above purpose

(3) Import licenses are made out in the name of the individual authorized to import films and for one particular film and are not transferable Preliminary permits and import licenses are valid for one year from the date on which the domestic film has been submitted to the committee for approval in the above sense

VI (1) The Federal Ministry of Commerce and Transportation may decide to what extent preliminary permits may be granted in advance of the investigations to be made in accordance with section 1 of Point IV Applications for advance permits must be accompanied by a report prepared by the film bureau of the Vienna Chamber of Commerce

(2) Films submitted for recognition as domestic products, but declined by the committee, may be granted free import in consideration of the domestic work contained therein In such a case the producer of a foreign film of this kind will be allocated an import permit without reference to domestic production (Point II)

(3) Comedies, grotesque films, trick films, news items, etc, not exceeding 700 meters in length including all titles, are entitled to import permits, outside of the contingent, in proportion to the number of shorts normally required to supplement programs

GERMANY

DECREE CONCERNING THE IMPORT OF EXPOSED MOTION-PICTURE FILMS

Since it is not definitely known whether on account of the international agreement for the abolition of import and export restrictions of November 8, 1927, the import regulation for films will be lifted as of June 30,1930, I am provisionally issuing the following regulations

On the basis of my regulations concerning the import of exposed motion-picture films dated December 11, 1928, 11 A/9 Nr 17 624/28, I am setting a fixed contingent of 210 films for the contingent year 1930–31, that is, the period between July 1, 1930, and June 30, 1931

Of this number 160 import permits are to be distributed to the renters entitled to them The remaining 50 permits remain at my disposal and according to my regulation of February 27, 1929, II 9a, Nr 3480/29, will be distributed to those German firms who are able to prove that they have sold German films abroad and that they have exhibited such films publicly abroad

On the basis of the above regulation, I call upon all renting firms who may claim contingent rights for the contingent year 1930–31 to send in their applications with statements regarding the German films carrying contingent rights which have been released by them before March 1, 1930, to the Aussenhandelsausschuss Filme, Dr Kuhnert, Berlin SW 48, Friedrichstrasse 250

In due time I will call upon the firms who have claims for obtaining export contingent permits to send in their claim

I reserve the right to issue special regulations regarding the import of sound and talking films at any time

HUNGARY

DECREE NO 201,395/1929 B M VII OF THE R H MINISTER OF THE INTERIOR

I decree herewith, in accord with the R H Minister of Commerce in conformity with the commission received in paragraph 6 of ministerial decree No 2,900 1929 M E as it refers to the execution of said decree the following

(1) The supervising board may grant a delay of payment of motion picture industrial fees up to June 1, 1930, charging 8 per cent interest per annum for films unclaimed up to the present if application for censoring of same was filed before August 1, 1929, with the National Board of Motion Picture Review, provided that the firms in question give a note in an amount sufficient as a security to cover the fees payable for their films

(2) Firms which are able to prove in a satisfactory manner that certain films of theirs were bought before August 1, 1929 and that a deposit for same was made at the time of purchase but up to the present owing to technical causes could not present same for censorship to the National Board of Motion Picture Review, may get the license for their film, exceptionally, based on the decisions of the ministerial decree No 11,300/1927 M E

Applications for above said preferential treatment must be sent to me for decision not later than February 15 1930, with the opinion of the National Hungarian Motion Picture Industrial Association inclosed

Concerning the fees payable the special treatment as set forth in the first paragraph of this decree may also be applied

(3) The film fund issues to the producer 20 import licenses for every domestically manufactured sound short not longer than 400 meters For every one of these import licenses one imported sound short may be distributed

As a transitionary measure, up to the time when the producing of the so-called sound shorts will start in Hungary but not later than June 1, 1930, five imported so-called sound shorts not longer than 400 meters may be distributed for the surrendering of one import license issued for the so-called normal motion-picture film

U. S. DEPARTMENT OF COMMERCE
R P. LAMONT, Secretary
BUREAU OF FOREIGN AND DOMESTIC COMMERCE
WILLIAM L COOPER, Director

AUTOMOTIVE EQUIPMENT AND CONSTRUCTION PREFERENCES IN FOREIGN COUNTRIES

Trade Information Bulletin No. 695

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FOREWORD

The customer preferences as to basic construction and equipment of automobiles vary greatly among the markets of the world In most tropical countries open cars are preferred, because they are considered cooler, and leather upholstery is required because of the rapid deterioration of fabric Hilly countries, and those without extensive improved roads, require high road clearance and, in many instances, special gear ratios Wood wheels do not withstand the heat and dampness of the interior of Africa Bright colors are becoming more and more popular in most markets, but green is regarded as a sacred color in Arabia and Persia, and dark red or maroon is reserved for the imperial family in Japan, therefore, these colors can not be used on automobiles in those markets

Many changes have taken place in these preferences since the publication of Trade Information Bulletin No 431, Automotive Equipment and Construction Preferences in Foreign Countries, and this bulletin is intended to present those changes and to replace the former publication It is based on reports from oversea representatives of the Departments of State and Commerce, and was compiled in the Automotive Division of the Bureau of Foreign and Domestic Commerce

That division has more detailed information on the countries covered in this report, and also material on countries from which data were received after this bulletin had gone to press The division invites specific inquiries from American exporters

WILLIAM L COOPER, *Director,*
Bureau of Foreign and Domestic Commerce.

MAY, 1930

AUTOMOTIVE EQUIPMENT AND CONSTRUCTION PREFERENCES IN FOREIGN COUNTRIES

Compiled by George F Viault, Automotive Division

American motor vehicles are well and favorably known throughout the world, but if they are to maintain their present position increased attention must be given to foreign preferences in matters of construction, equipment, and color Exporters of American automobiles are looking to the foreign field to absorb a substantial part of production, and they should not overlook the fact that foreign manufacturers are doing everything in their power to supply their home markets as well as to get a larger share of export business To stimulate the greatest possible demand, it necessarily follows that local color, trimming, upholstery, and design preferences should be carefully considered

American manufacturers have catered to many local preferences and have increased their sales accordingly In a few cases such preferences have been changed or influenced largely by an appreciation of the advantages of standard products, but, on the whole, successful exporters are following the foreign dealers' specifications as closely as possible

In compiling the material for this bulletin, tables were prepared showing the rule of the road and drive preferences throughout the world Other tables show construction and equipment preferences. Some of the preferences mentioned in this report are not basic, and undoubtedly the present demands will change as the markets expand. The purpose of this publication is to show the trends that have manifested themselves, and in no way is it to be presumed that equipment and accessories for which no demand has yet developed are not salable

Where the rule of the road is to the left, the preference is almost always for right-hand drive cars In many countries the importation of left-hand drive cars is expressly prohibited

The growing use of the closed car has become manifest throughout the world The open car is still popular in many countries having a warm, even temperature, but the closed car continues to gain in popularity In primitive countries, the open car is usually preferred because it can be loaded with freight and passengers with greater ease than a closed car Bright colors are particularly favored, and the plated trimmings on present-day models make them more attractive Battery ignition is in almost universal demand There are a few markets, however, where magneto ignition is still in favor. Magnetos are popular where there is a moist tropical climate, in countries where the servicing of batteries has not reached a well-developed stage, and on many islands where the trips are so short that a battery does not easily recharge

The road clearance of American cars is satisfactory in most foreign markets However, the trend toward low clearance is not welcomed in hilly countries, or in countries where road construction is not far advanced

Considerable attention should be given to those countries in which the metric system is in use It is important in such markets to have the speedometer register in kilometers In the case of gasoline gages, considerable difficulties have arisen, it has been found most satisfactory to equip cars with gages showing ¼, ½, ¾, and full in those markets where the metric system is in use when there is difficulty in equipping vehicles with liter gages

The preference in regard to wheels has varied greatly in the past few years On passenger cars, all types are used, but wood and wire wheels are apparently favored In the case of trucks, wood and steel spokes lead in popularity, with a growing demand for disk wheels on heavy models In the tables following the types have been arranged in the order of their popularity

Balloon tires are universally in demand throughout the world The preference is so well established and standardized that little discussion on the subject will be given in the individual market preference surveys The balloon tire is also popular on busses, and the use of solid tires on trucks is constantly decreasing Many European countries prohibit the use of solid tires on city streets

Standard equipment is satisfactory in most foreign countries This is especially so in Europe, where the regular equipment on stock models usually satisfies the wants of the purchaser In a large number of countries and among particular groups there is a demand for smart and showy accessories

Regulations prohibiting the use of spotlights have spread to a considerable extent in cities throughout the world, but such lights are generally popular in poorly lighted rural districts

A special gear ratio is required in some countries, but standard American cars perform satisfactorily in most cases Where no mention is made of gear ratio in the reports that follow, it will be understood that standard equipment is entirely satisfactory

NORTH AMERICA

Automotive preferences in North America are largely those of the United States, with slight variations due to climatic conditions Most of the countries in this area have no definite preferences that American manufacturers do not supply, and there is almost no European competition As a result, the demand is largely for American stock models

Closed cars have made considerable progress in recent years, and are most popular in Canada, Mexico, Costa Rica, and other markets The open car has retained a considerable amount of its popularity in the West Indies generally, except in Cuba, where private owners prefer closed models in order to distinguish them from public vehicles The color of the car is an important item, strict attention should be given this matter

Fabric upholstery is not liked in the West Indies or in Central America The hot moist weather is some of the countries in this area makes the use of leather and substitutes more acceptable, because of its coolness and durability This is particularly true with regard to open cars Fabric upholstery is usually acceptable in closed cars and is preferred by purchasers of medium and high price cars

Accessories are exceedingly popular in Mexico, Central America and the West Indies, because of the showy appearance given the car Chromium and other modern plating work is greatly admired, although some kinds deteriorate quickly because of weather conditions

NORTH AMERICAN DRIVE PREFERENCES AND RULE OF THE ROAD

Country	Rule of road	Drive preference
Bahama Islands	Left	Right hand
Barbados	do	Do
British Honduras	do	Left-hand
Canada	Right	Do
Costa Rica	do	Do
Curacao	do	Do
Dominican Republic	do	Do
Dutch West Indies	do	Do
Grenada	Left	Do
Guadeloupe	Right	Do
Guatemala	do	Do
Haiti	do	Do
Honduras	do	Do
Jamaica	Left	(1)
Martinique	Right	Left hand
Mexico	do	Do
Newfoundland	Left	Do
Nicaragua	Right	Do
Panama	do	Do
Porto Rico	do	Do
Salvador	do	Do
Trinidad and Tobago	Left	Right-hand

[1] Generally left-hand, but dealers should specify

North American Basic Construction Preferences

Country	Passenger-car types	Ignition		Road clearance	Wheels	
		Passenger cars	Trucks		Passenger cars	Trucks
Bahama Islands	50 per cent open, tendency to closed	Battery	Battery	High	Wood	Wood
Barbados	60 per cent open, sedan becoming popular	do	do	Average	Wire	Disk
Canada	80 per cent closed	do	do	do	Wood, some disk and wire	Wood, some disk and steel-spoke artillery
Costa Rica	85 per cent 5 passenger sedans	do	do	High	Wood and wire	Steel spoke
Cuba	Closed for private use	do	do	Usual	No preference	Wood or steel spoke
Dominican Republic	85 per cent open 5-passenger	do	do	High	Wood, disk, and wire	Steel spoke, wood, and disk
Guatemala	5 passenger touring	do	do	do	Wire, wood	Artillery
Haiti	65 per cent open touring models	do	do	do	do	Wood or steel spoke
Honduras	75 per cent open	do	do	do	Wire, wood, and disk	Wire, wood, and disk
Jamaica	75 per cent open touring	do	do	do	Wire	Disk
Martinique	60 per cent open	do	do	Medium	do	No preference
Mexico	90 per cent closed, small types increasing	do	do	High	Wood, wire	Steel spoke
Newfoundland	Closed 2 and 5 passenger	do	do	Average	Wire	Steel spoke or disk
Nicaragua	75 per cent 5 or 7 passenger	do	do	High	Wood, disk, and wire	Wood
Porto Rico	65 per cent open	do	do	No preference	Wood	Steel spoke
Salvador	Closed, with increase in 2-passenger	do	do	High	No preference	Disk and steel spoke

NORTH AMERICAN EQUIPMENT AND FINISH PREFERENCES

Country	Accessory equipment	Body finish	Gasoline gauge	Speedometer	Tires	
					Passenger cars	Trucks
Bahama Islands	Bumpers, spare tire, radiator ornaments	Colors, rust resisting trimmings	United States	Miles	Balloon	Solid
Barbados	Bumpers, rear-view mirror, spare tire	Plating	do	do	do	Do
Canada	Usual equipment	Dark colors	British	do	do	Pneumatic
Costa Rica	Bumpers, spare tire, rear view mirror	do	No preference	Kilometers	do	Do
Cuba	Full equipment	Plating	United States	do	do	Pneumatic and solid
Dominican Republic	Standard equipment	Brown most popular	do	do	do	Pneumatic
Guatemala	Full equipment with shock absorbers	Light colors	do	do	do	Do
Haiti	Bumpers spare tire, rear view mirror	Brown, dark blue, and green	do	No preference	do	Do
Honduras	All accessories	Distinctive colors with plating	do	Kilometers	do	Pneumatic and solid
Jamaica	Usual	do	United States or British	Miles	do	Pneumatic
Martinique	Very few	Black or navy blue	Metric	Kilometers	do	Do
Mexico	All equipment	All colors with plating	do	do	do	Pneumatic and solid
Newfoundland	Standard	Latest styles	British	Miles	do	Pneumatic
Nicaragua	All equipment	Light blue, green, black, plating	United States	Kilometers	do	Do
Porto Rico	Minimum	Colors, nonrust plating	do	Miles or kilometers	do	Pneumatic and solid
Salvador	Full equipment	No preference	do	do	do	Pneumatic

BAHAMA ISLANDS

Leo J Callahan, American Vice Consul, Nassau

There has been a growing preference in the Bahama Islands for closed models, especially during the rainy season Colored vehicles with plated trimmings are preferred The trimmings should be rust-proof Genuine and imitation leather upholstery gives better service and is much cooler in the tropical climate

BARBADOS

William W Brunswick, American Consul, Bridgetown

All cars sold in Barbados have bumpers, spare tire, and rear-view mirrors A small proportion of cars have spot lights, but there is practically no demand for them The cars all have plated trimmings, and the low and medium price American cars have genuine or imitation leather upholstery

About 60 per cent of the cars in use are open, but the present tendency is toward sedans The 5-passenger vehicles are most popular Wire wheels are used to a considerable extent on passenger cars, and some have disk wheels Many trucks are equipped with disk wheels

CANADA

A H Thiemann, Assistant Trade Commissioner, Ottawa

There does not appear to be any important differences between average American preferences and Canadian preferences Perhaps the most outstanding preference is for the British gasoline gage to measure imperial gallons Bumpers, spare tire, rear-view mirror, and windshield wiper are the usual accessories

Dark colors predominate, but many new cars have brilliant hues Cloth upholstery of sober tone and plated trimmings are popular Approximately 80 per cent of all cars are closed and 85 per cent are 4 or 5-passenger vehicles

Practically all new cars are equipped with balloon tires, and trucks with pneumatic tires Artillery wheels predominate in both passenger cars and trucks In the case of passenger cars, wire and disk wheels are also used to some extent There is some demand for disk and steel-spoke wheels on trucks

COSTA RICA

R W Unckles, American Vice Consul, San Jose

Ninety per cent of the passenger cars now being imported into Costa Rica are closed 5-passenger vehicles Leather upholstery to match the color of the car is generally preferred Automobiles should have a high road clearance because of the ruts, rocks, and other obstructions encountered on most of the roads of the country It is customary for cars to come equipped with a special gear ratio to provide extra pulling power, because of the generally steep grades

CUBA

Edward D McLaughlin, Assistant Trade Commissioner, Habana

There is no Cuban preference in body colors Leather upholstery is the most popular Trimmings in use are those ordinarily in vogue in the United States, with the exception that the cowl lights mounted on the hood are indispensable They are classed as extra equipment and so charged for by dealers

About 50 per cent of the cars are open models, and this class of vehicle is used largely for hire purposes Private owners usually prefer closed cars, if only to distinguish them from public vehicles. Disk wheels are very popular on passenger cars Some trucks have steel wheels, but the majority have ordinary wood types

DOMINICAN REPUBLIC

Reed Paige Clark, American Consul, Santo Domingo

Colored cars with leather or imitation-leather upholstery are preferred in the Dominican Republic Brown is in favor for all upholstery Eighty-five per cent of the cars are open models High road clearance is preferred, but the majority of the imported cars have low clearance and are accepted in that condition Wood and disk wheels are the most popular on passenger cars Steel-spoke, wood, and disk wheels are popular on trucks

GUADELOUPE AND MARTINIQUE

James E Parks, American Vice Consul, Martinique

There are no local preferences in Guadeloupe and Martinique that American manufacturers do not cater to About 60 per cent of all cars are open models Dark colors are preferred Ordinary American road clearance is acceptable, the road clearance on French cars is said to be too low

GUATEMALA

Merwin L Bohan, American Commercial Attache, Guatemala City

There is a strong demand in Guatemala for shock absorbers, owing to the poor condition of the streets and roads, and, for the same reason, cars having a high road clearance are preferred The majority of the cars in operation are 5-passenger open models Light colors are in favor Leather and imitation-leather upholstery is popular in the open models, and mohair in the closed cars The metric system is in use, but gasoline is sold in United States gallons, and therefore indicators showing gallons are acceptable However, speedometers should register in kilometers

HAITI

George D LaMont, American Vice Consul, Port au Prince

Brown, dark blue, and green are the most popular body colors in Haiti Leather upholstery is most popular because of its coolness and also because it is not so easily soiled About 65 per cent of all cars are open models, and the majority are 5-passenger touring cars High road clearance is preferred, owing to highway conditions and the number of streams which must be forded on roads in the interior The country is extremely hilly, and although most cars in use have a standard gear ratio, a lower ratio would be desirable

HONDURAS

David J D Myers, American Consul, Tegucigalpa

Honduran buyers desire all accessory equipment possible Fifty per cent of the cars in use are black because none other are available, but bright, attractive colors, especially green, with showy trimmings are preferred Cars are often sold on appearance and comfort

Genuine leather upholstery is in demand Road clearance should be high, at least 9½ inches There is no particular preference with regard to wheels Wood, wire, and disk wheels are almost equally popular on passenger cars and trucks There is some use of steel wheels on heavy trucks

NICARAGUA

Girvan Teall, American Vice Consul, Corinto

The average car purchaser in Nicaragua shows preference for a stock American car which has an air of luxury expressed by bright colors and trimmings and a generous display of accessories Light blue, green, and black are favorite colors Leather upholstery is preferred Open cars with large seating capacity are the most popular.

JAMAICA

José de Olivares, American Consul, Kingston

About 70 per cent of the automobiles in use in Jamaica are 5-passenger touring cars Light blue, maroon, and tan, with leather upholstery to match, are popular Spot lights are prohibited by law and may be used for repair work only Rear-view mirrors are compulsory The British imperial gallon is the standard measure, but the United States gallon indicator is acceptable

MEXICO

Walter E Aylor, Assistant Trade Commissioner, Mexico City

Mexican preferences with regard to color and equipment are similar to those in the United States Spot lights are prohibited in many cities and rear-view mirrors are compulsory About 80 per cent of the cars have fabric upholstery, which is satisfactory except in the hot sections of the country Closed cars are the most popular There has been an increasing number of coupés and roadsters in use, particularly for women who drive their own cars, multicar families, and young men

There is a considerable demand for trunk racks and trunks to match the body finish Theft-proof attachments are very popular, as petty pilfering is a source of constant annoyance to motorists Throughout the greater part of the Republic special gear ratio is very necessary because of the loss of power due to high altitudes and the consequent rarity of atmosphere, and also on account of the heavy grades A metric speed indicator should be provided

NEWFOUNDLAND

Avra M Warren, American Consul, St John's

Although the rule of the road in Newfoundland is to the left, there are no requirements for right-hand drive, and the majority of car owners prefer standard American and Canadian left-hand drive automobiles Closed cars are now the most popular There is no particular preference with regard to color or upholstery Automobiles should be equipped with a gasoline gage registering imperial gallons In 1929 wire wheels achieved a preference on passenger cars, followed by the artillery type Steel-spoke wheels and disks are the two types most preferred on trucks.

PORTO RICO

Darwin De Golia, Assistant Trade Commissioner, San Juan

Bumpers, spare tire, and rear view mirror are standard equipment in Porto Rico Spot lights are not in general use, and few are sold. Colors are much preferred, although no particular one is outstanding. Porto Ricans prefer leather upholstery, resident Americans prefer fabric The island is very mountainous, and there are many heavy grades, standard American gear ratios, however, are satisfactory Occasionally an order is placed for somewhat lower ratios than usual for heavy trucks, but automotive dealers do not believe that a special gear ratio would prove an important selling point

EL SALVADOR

A E Carleton, American Consul, San Salvador

There has been a notable increase in small cars in El Salvador. Closed cars are definitely the most popular and make up 75 per cent of recent importations There are no definite color preferences. Leather upholstery is preferred, in colors to match the car Plated work is very popular

SOUTH AMERICA

Open cars have retained a considerable portion of their appeal in the South American countries, particularly when the cars are to be used outside of cities Automobiles exported to these countries, with the exception of British Guiana, should be equipped with metric speedometers Gasoline gages graduated in liters are used in all countries except Ecuador and British Guiana Battery ignition is original equipment on all imported cars High road clearance is a matter of importance on roads outside of cities Special gear ratio is not required in all the South American markets, but is used to advantage in those countries having a mountainous hinterland

The trend in wheels has been in favor of the wood and wire types. Disk wheels have not increased in popularity Balloon tires are in general use on passenger cars

SOUTH AMERICAN DRIVE PREFERENCES AND RULE OF THE ROAD

Country	Rule of road	Drive preference
Argentina	Left	Right hand
Bolivia	Right	Left hand
Brazil	do.	Do
British Guiana	Left	Do
Chile	Right	Do
Colombia	do	Do
Ecuador	do.	Do
French Guiana	do	Do
Paraguay	Left	Do
Peru	Right	Do
Surinam	do	Do
Uruguay	Left	Right hand
Venezuela	Right	Left hand

SOUTH AMERICAN BASIC CONSTRUCTION PREFERENCES

Country	Passenger car types	Ignition		Road clearance	Wheels	
		Passenger cars	Trucks		Passenger cars	Trucks
Argentina	Closed 5 and 7 passenger	Battery	Battery	High	Wood, wire	Wood, disk, and steel spoke
Bolivia	Open dominates	Magneto and battery	Magneto and battery	do	do	Disk and steel spoke
Brazil	Open north of Rio de Janeiro	Battery	do	do	do	All types
Chile	60 per cent closed 5 and 7 passenger	do	Battery	do	Wire	Steel spoke, wood, disk
Colombia	Closed in Bogota, open on north coast, 5 and 7 passenger	do	do	do	Wood, wire	Steel spoke, wood, wire
Ecuador	Sedans	do	do	do	Wire	Disk
Paraguay	5 and 7 passenger touring cars	do	do	do	Wood, wire	Wood, steel spoke
Peru	51 per cent open 5 and 7 passenger	do	do	High outside cities	Wood	
Uruguay	Closed 5 passenger	do	do	High for interior	Wood, wire	Disk, steel spoke
Venezuela	90 per cent open 5 and 7 passenger	do	do	High	do	Steel spoke

SOUTH AMERICAN EQUIPMENT AND FINISH PREFERENCES

Country	Accessory equipment	Body finish	Gasoline gauge	Speedometer	Tires	
					Passenger cars	Trucks
Argentina	All accessories	Medium to light, plating	Metric	Kilometers	Balloon	Penumatic
Bolivia	Original equipment only	Conservative 2-tone finishes	United States	do	do	Do
Brazil	Bumpers, some spot lights	Bright colors	Metric	do	do	Do
Chile	Full equipment	Light colors	do	do	do	Pneumatic and solid
Colombia	United States standard	do	do	do	do	*Pneumatic, some solid*
Ecuador	Bumpers, spare tires	Flashy, with plating	United States	do	do	Pneumatic
Paraguay	Bumpers, spare tires, rear-view mirrors	Green, blue, tan, no black, plating	Metric	do	do	Do
Peru	All equipment	Colors, with plating	United States	do	do	Do
Uruguay	do	Colors	Metric	do	do	Do
Venezuela	Bumpers, rear-view mirrors	Dark colors	do	do	do	Do

ARGENTINA

Thomas C Ballagh, Assistant Trade Commissioner, Buenos Aires

Closed cars are numerous in Argentina, but open cars still enjoy a considerable portion of the market It is believed that of all cars in use, closed cars account for 30 per cent of the low-price, 60 per cent of the medium, and 50 per cent of the high-price group Plated work is universally in demand Leather upholstery is used in open cars and to some extent in closed cars Dark and medium colors are the most popular, but about 20 per cent have light-color finishes.

All automobiles exported to Argentina should be equipped with metric-system indicators and with right-hand drive Batteries are used almost to the exclusion of magnetos

There is a widespread preference for automobiles with high-road clearance, owing to the dirt roads outside the cities At present, American and European manufacturers do not cater to this demand.

BOLIVIA

Edward G Trueblood, American Vice Consul, La Paz

In Bolivia, body finishes are preferred in colors, rather than black. Two-tone finishes and trimmings are popular Conservative colors are preferred Upholstery of real or artificial leather is requested by a large percentage of car buyers There is a divergence of opinion with regard to battery or magneto equipment High-road clearance is unanimously favored, owing to the very bad general condition of the roads Artillery wheels are usually preferred on passenger cars, with a growing demand for wire wheels Disk and steel-spoke wheels are preferred on trucks

Bodies should be strengthened in every possible way in order to stand the rough usage automobiles are given Special gear ratio is of great advantage on this market, because most of the cars in the country are used in the plateau region. This region has an altitude of 13,000 feet, and roads have steep grades Increased climbing power is essential in view of the loss of power due to the altitude.

BRAZIL

Howard H Tewksbury, American Trade Commissioner

The automotive market of Brazil is controlled by dealers in American cars, and American innovations are usually popular At present, bumpers are used on practically all cars Spot lights are used to a small extent Bright-colored vehicles with plated trimmings are greatly in demand Leather or imitation-leather upholstery is generally preferred north of Rio de Janeiro

The gasoline gage and the speedometer should register in the metric system, however, gasoline indicators showing ¼, ½, ¾, and full are acceptable Battery ignition is almost universal Magneto ignition is sometimes requested for heavy trucks High road clearance is important Solid tires are discouraged by heavy taxation Wood and wire wheels are preferred on passenger cars and trucks up to 3 tons Trucks over 3 tons are usually equipped with steel-spoke or heavy disk wheels

CHILE

Howard H. Tewksbury, American Trade Commissioner

The Chilean purchaser of an automobile desires as much extra equipment as possible. Distributors ordinarily put on additional equipment to meet this demand. Although any color is acceptable, the brilliant and light shades are preferred. It is very difficult to keep dark-finished vehicles clean because of the great amount of dust, particularly in the summer season. While plated trimmings are very well liked, their absence is not sufficient to affect sales materially.

Fabric, leather, and some artificial leather are all used in the upholstery, and there appears to be little choice between the first two. Leather upholstery is said to be the logical type to supply for central and northern Chile, because of the ease of cleaning it, but no pronounced preference has developed for it except in the north.

It is estimated that closed cars account for 50 or 60 per cent of sales at the present time, and the ratio is increasing. The demand for this type of car has come almost entirely within the past three years and has grown very rapidly. In cars of the $2,000 price class approximately 80 per cent of the present sales are closed models. Roadsters, coupés, and cabriolet models have a small demand.

COLOMBIA

Walter J. Donnelly, American Commercial Attaché, Bogota

Standard accessories, such as bumpers, rear-view mirrors, etc., are in wide use throughout Colombia. Spot lights are increasing in popularity with the constant extension of new roads from the principal cities. Horns and other warning signals are in great demand. Light colors are preferred. Leather upholstery is the most acceptable to purchasers outside of the cities. The road clearance of cars shipped to the Colombian market should be high. All indicators should register in the metric system. Artillery wheels are preferred on passenger cars, and steel, wood, and wire wheels are used on trucks, depending largely on the vehicle and what it is used for.

ECUADOR

John T. Wainwright, American Vice Consul, Guayaquil

Passenger cars in Ecuador at the present time are used for taxi service and restricted pleasure driving in the cities. There has been no opportunity for any real preferences to manifest themselves. Bright colors are in demand. The gasoline gage should register United States gallons, but the speedometer should be in kilometers. It is believed that special gear ratios will be necessary as roads are built in the interior, because of the mountainous nature of the hinterland.

PARAGUAY

John B. Faust, American Vice Consul, Asuncion

Approximately 90 per cent of all passenger cars in Paraguay are five and seven passenger touring cars. Practically all colors except black are used; green, blue, and tan are the most popular. Plating work is in great demand. The gasoline gage should show liters. The practice of having the gage indicate full, ¾ full, etc., is disliked. A 10-inch road clearance is needed because of the lack of roads. Almost all passenger cars and trucks have wooden wheels, but some passenger cars have wire wheels, and a few trucks have steel wheels The market is essentially a price market, and only the most necessary and cheapest equipment can be sold

PERU

Julian D Smith, Assistant Commercial Attaché, Lima

Stock models of American cars are entirely satisfactory to Peruvian purchasers The gasoline gage should show United States gallons, and the speedometer should register kilometers Colored cars with plenty of plated trimmings are the most popular Wood wheels are in greatest demand Automobiles for use in the interior should have a high road clearance Automobile dealers report that Peru takes an unusually high proportion of closed cars

URUGUAY

Connie H Herron, Acting Commercial Attaché, Montevideo

Most American and European cars are imported into Uruguay fully equipped, including a spare tire Blues, tans, greens, and combinations of colors with plated trimmings are popular Imported cars are usually upholstered in plush, leather, etc , in tan, grey, brown, and other dark colors Sport cars tend toward light, fancy colors with leather upholstery to match

The metric system is in use, and all registering apparatus, including speedometers and gages, should be in kilometers or liters Wood and wire wheels are favored for use on passenger cars and light trucks Steel-spoke and disk wheels are used on heavy trucks No special gear ratios are necessary

VENEZUELA

O R Strackbein, Assistant Trade Commissioner, Caracas

Open cars are the most popular with the Venezuelan public Dark colors, with plated trimmings and leather upholstery, are the principal features of local requirements The gasoline gage and the speedometer should register in the metric system The road clearance should be high Wood and wire wheels are preferred on passenger cars and steel wheels on trucks Because the country in mountainous, a special gear ratio is preferred if available as factory equipment

EUROPE

The European market preferences are in the nature of equipment and finish rather than constructional features These preferences are very largely in accordance with whether there is a local automobile manufacturing industry In those countries where automobiles have been manufactured in past years, there are certain definite preferences The excellent performance and appearance of American cars in these markets, however, have had their influence in Europe, and also caused the local industry to adopt American methods This is seen in the now almost universal adoption of the battery system of ignition and the original equipment of automobiles with bumpers and rear-view mirrors, etc

European car owners desire their cars to be individualistic This is particularly true of high-price cars As a result, European manufacturers cater very closely to individual tastes This tendency is breaking down, however, and every year brings a new class of purchasers for American stock-model cars

American engineering features are satisfactory, with but few exceptions European roads are seldom well lighted, and night driving makes the use of very strong headlights necessary European manufacturers have recognized this fact and have developed several powerful lighting systems

RULE OF THE ROAD AND DRIVE PREFERENCES IN EUROPE

Country	Rule of road	Drive preference
Austria	Left, to be changed to right	Right or left hand
Azores	Left	Right-hand
Belgium	Right	Left-hand
Bulgaria	do	Do
Cyprus	Left	Right-hand
Czechoslovakia	do	Do
Danzig	Right	Left hand
Denmark	do	Do
Estonia	do	Do
Finland	do	Do
France	do	Do
Germany	do	Do
Gibraltar	do	Do
Greece	do	Do
Hungary	Left	Right hand
Iceland	Right	Left-hand
Irish Free State	Left	Right hand
Italy	Right	Left-hand
Latvia	do	Do
Lithuania	do	Do
Madeira Island	do	Do
Malta	Left	Right hand
Netherlands	Right	Left-hand
Northern Ireland	Left	Right hand
Norway	Right	Left-hand
Poland	do	Do
Portugal	do	No preference
Rumania	do	Left-hand
Russia	do	Do
Spain	do	Dealers should specify
Sweden	Left	Right or left hand
Switzerland	Right	Left-hand
Turkey	No rule, right is customary	Do
United Kingdom	Left	Right-hand
Yugoslavia	Right	Left-hand

EUROPEAN BASIC CONSTRUCTION PREFERENCES

Country	Passenger car types	Ignition		Road clearance	Wheels	
		Passenger cars	Trucks		Passenger cars	Trucks
Albania	50 per cent 5 passenger	Magneto	Magneto	High	Disk	Disk
Austria	80 per cent closed	Magneto and battery	Magneto and battery	Low	Little preference. Wire on high-price models	Steel spoke, wood, and some disk
Azores	Open 5 passenger	Battery	Battery	Medium	Wire or wood	Wire or wood
Belgium	95 per cent closed, 5 or 7 passenger, 4 door	do	do	Low	Little preference	Wood and steel spoke
Bulgaria	5 passenger closed	Magneto	Magneto	High	Wood or wire	Wood
Czechoslovakia	Closed, 4 or 6 passenger	Battery	Battery	Low	Wire and wood	Steel spoke
Danzig	Closed, 5 or 7 passenger	Little preference	Little preference	Average	Wood or wire	Wood and disk
Denmark	78 per cent closed, 14 per cent coupés and roadsters	Battery	Battery	Low	Wood, disk, or wire	Wood or disk
England	80 per cent closed	do	do	do	65 per cent wire	Steel spoke
Estonia	80 per cent closed, 5 or 7 passenger units	Battery and magneto	Battery and magneto	Average	Wood	Disk for use of double tires on rear
Finland	Closed 5 passenger sedans	Battery	do	High	Wood, some disk and wire	Steel spoke and wood
France	75 per cent closed	do	Battery	Low	Disk and wire	Disk and steel spoke
Germany	do	Battery and magneto	Battery and magneto	do	Wood, disk, and wire	Steel spoke
Gibraltar	Closed 5 or 7 passenger	Magneto	Magneto	High	Disk and wire	Wood and steel spoke
Greece	Closed in cities	Battery	Battery	Medium	Little preference	Steel spoke
Hungary	Closed 7 passenger	Battery and magneto	Battery and magneto	High	Wood	Do
Irish Free State	90 per cent closed 5 passenger	Magneto	Magneto	Low	do	Wood
Italy	Closed 5 passenger	Battery and magneto	Battery and magneto	Minimum of 9½ inches	Wood and disk	Disk
Latvia	Closed or open	Magneto or battery	Magneto or battery	High	Wood	Wood
Lithuania	80 per cent closed 5 passenger	Magneto	Magneto	Low	Wood and wire	Steel spoke
Luxemburg	Closed 5 and 7 passenger	Battery	Battery	do	Disk or wire	Disk
Madeira Islands	Open 5 passenger	do	do	Average	Wire	Disk and steel spoke
Malta	60 per cent 5 passenger	do	do	Low	75 per cent wood, 25 per cent wire and disk	Wood
Netherlands	90 per cent closed	do	do	Average	Wood disk	Wood, steel spoke
Northern Ireland	Closed only	do	do	Low	Wire wood, disk	All kinds
Norway	80 per cent closed 4 passenger	do	do	do	Wood	No preference
Poland	5 passenger sedans	do	do	do	do	Wood or steel spoke
Rumania	75 per cent closed cars	do	do	Average	Wire and disk	Steel spoke
Spain	Closed	do	do	Medium	do	Little preference, but not wood
Sweden	Closed 4 door sedan	do	do	Average	Wood wire, and disk	Wood, steel spoke
Switzerland	75 per cent closed 5 passenger	do	do	Low	Wood	Wood
Turkey	Closed	Battery (magneto for Government)	Battery (magneto for Government)	High	Disk, wire	Steel spoke
Yugoslavia	Closed 5 or 7 passenger	Battery	Battery	do	do	Do

EUROPEAN EQUIPMENT AND FINISH PREFERENCES

Country	Accessory equipment	Body finish	Gasoline gauge	Speedometer	Tires	
					Passenger cars	Trucks
Albania	Bumpers, spare tire, loud horn	Colors with trimming	Metric	Kilometers	Balloon	Pneumatic
Austria	All equipment	Dark with plating	do	do	do	Do
Azores	do	Colors and plated trimmings	do	do	do	Do
Belgium	General equipment	do	do	do	do	Do
Bulgaria	All equipment	Bright for open cars	do	do	High pressure and heavy duty balloon	Do
Czechoslovakia	do	Colors with plating	do	do	Balloon	Do
Danzig	General equipment	Dark colors, plating	do	do	do	Do
Denmark	do	do	do	do	do	Do
England	American standard	Conservative and individualistic	British	Miles	do	Do
Estonia	Bumpers, two spare tires, wiper, rear-view mirror	Dark colors	Metric	Kilometers	do	Do
Finland	Usual	Dark shades, plating	do	do	do	Pneumatic and semisolid
France	All equipment, including spotlight	Colors, plating	do	do	do	Pneumatic
Germany	General equipment	Dark and medium hues	do	do	do	Do
Gibraltar	Full equipment	Colors, plating	do	do	do	Pneumatic and solid
Greece	do	Colors	United States and metric	do	do	Do
Hungary	do	Colors, plating	Metric	do	Full balloon	Pneumatic
Irish Free State	Bumpers, rear-view mirror	Black or dark with trimmings	British	Miles	Balloon	Pneumatic up to 6 tons
Italy	Bumpers, spare tires, rear-view mirrors	Quiet colors	Metric	Kilometers	do	Pneumatic and solid
Latvia	Standard equipment	Dark shades	do	do	do	Pneumatic
Lithuania	Full equipment	Black, blue, green, and brown	do	do	do	Do
Luxemburg	Standard equipment	Dark blue	do	do	do	Do
Madeira Island	All equipment	Colors, plating	do	do	do	Do
Malta	No preference	Modern colors, plating	British	Miles	do	Solid and pneumatic
Netherlands	Standard American	Soft colors	Metric	Kilometers	do	Pneumatic
Northern Ireland	Minimum	Colored finishes	British	Miles	do	Do
Norway	Full equipment	Mostly black	Metric	Kilometers	do	Do
Poland	All "extras"	Bright colors, plating	do	do	do	Do
Rumania	All kinds if attached securely	Dark blue, gray, maroon, plating	do	do	do	Solid and pneumatic
Spain	Full equipment	Dark, with plating	do	do	do	Pneumatic
Sweden	do	Black, dark blue, maroon, green, brown	do	do	do	Pneumatic and solid
Switzerland	Standard equipment	Green, blue, brown, some reds and yellows	do	do	High pressure and balloon	Pneumatic
Turkey	Ornaments of all kinds	Dark shades	No preference	do	Balloon	Do
Yugoslavia	General equipment	Colors with plating	Metric	do	do	Do

ALBANIA

Julian C Holmes, American Charge d'Affaires, Tirana

The number of motor vehicles in Albania is small, and the purchasing public has not developed any special preferences for finish, style, or equipment The majority of the highways are so bad that an automobile is regarded not as a pleasure vehicle, but solely as a means of transportation Most car owners are less concerned with the appearance of their cars that with their strength, endurance, and ability to stand up under rough treatment and lack of care

AUSTRIA

John A Embry, American Commercial Attaché, Vienna

There are no Austrian preferences which American automotive manufacturers do not provide for and which other foreign or domestic manufacturers cater to The American car was instrumental in teaching the local public what to expect and demand of a car

All American color combinations are acceptable; darker shades seem to be more popular than light colors Plated trimmings are very much in favor The standard types and colors of American upholstery are satisfactory Black, dark blue, and brown leather are used to some extent on locally made cars Artificial leather is unpopular owing to the rapid wear

AZORES

William H Hunt, American Consul, St Michal's

There are no local preferences in the Azores because of the small size of the market Colored cars, with leather upholstery to match and plated trimmings, are popular Wood and wire wheels are used almost exclusively on passenger cars and trucks

BELGIUM

Leigh W Hunt, Assistant Commercial Attaché, Brussels

The trend of Belgian preference has been constantly toward the American vehicle Price is an important factor, but purchasers desire to have their car fully equipped and to avoid all extra charges Bumpers are now standard equipment, as is battery ignition Spotlights are not widely used and at the present time are not popular because of the misuse of such lights by autoists Artistic body finishing and color combinations are very important Blue, black, red, grey, and certain shades of green (never bright) are the most popular finishes There has been a demand for novel color combinations Plated trimmings are in universal demand

The demand for upholstery is largely for grey and blue-grey fabrics Fancy upholstery is used on de-luxe cars, the chauffeur's seat in limousines is almost invariably of black leather The gasoline gage and the speedometer should be in the metric system

Artillery wheels are used to a great extent at the present time, with wire wheels on the ascendancy Disk wheels are not used as much as formerly on new cars, although local preferences are in favor of disk and wire wheels

BULGARIA

Samuel Green, American Consul, Sofia

Black and dark colors are preferred in Bulgaria for closed cars and bright colors for touring and sport cars, though the demand for the latter is very small Plated trimmings are very much preferred, as well as leather upholstery in light colors The magneto ignition system is preferred The gasoline gage should register liters, and the speedometer should register kilometers Road clearance should be high (more than 10½ inches) on account of the poor conditions of roads in rural districts

CZECHOSLOVAKIA

K L Rankin, American Commercial Attaché, Prague

Preferences in the matter of automobile equipment in Czechoslovakia are comparatively the same as in the United States Colored cars with light shades of upholstery are popular There is now a tendency to add to the usual equipment in the way of accessories in order to have additional sales arguments Spotlights have come into wide use and are generally included as standard equipment Two extra tires, with rims or wheels, are commonly furnished, and the local preference is to place them on the sides of the car in fender wells This facilitates the location of a trunk rack at the rear, as automobile trunks are in common use though not usually furnished as standard equipment

DANZIG

C Warwick Perkins, American Consul, Danzig

Cars in Danzig are usually equipped with spare tire, bumpers, rear-view mirror, tire covers, two horns (one hand), and a turn indicator Spotlights are prohibited by law Bright colors and plated trimmings are preferred All cars should be equipped with gauges and speedometers registering in the metric system

DENMARK

Harry Sorensen, American Commercial Attaché, Copenhagen

Accessories are used quite extensively in Denmark Black is still used as a body finish on a very large number of cars, but other colors, especially the brighter ones, are coming into greater vogue Plated trimmings are used very etxensively Leather is used only to a very small extent usually for open cars and chauffeurs' compartments Upholstery in closed cars is ordinarily of plush or broadcloth of conservative shades The very low types of cars are favored, low clearance being popular and made possible by the excellent road system

The majority of passenger cars are equipped with artillery wheels, with disk and wire wheels increasing in popularity Truck wheels are usually of wood, but in the lighter delivery cars, disk wheels are increasing in favor

ENGLAND

Donald Renshaw, Acting Commercial Attaché, London

The majority of the cars on the British market are well equipped with accessories The colors in vogue are subdued tones in the high-price range and brighter colors on the less expensive cars The individual purchaser desires his car painted to suit his own tastes, and manufacturers are inclined to go as far as practicable in meeting the wishes of their customers

The trend in passenger cars is strongly in favor of closed bodies Closed cars accounted for 80 per cent of 1929 sales

In the passenger-car field, the balloon tire has definitely established itself In the case of trucks and busses, the tendency is away from solid tires and toward high-pressure pneumatic tires of the heavy-duty type

Wire wheels are now in fvor At the opening of 1930 it was estimated that 66 per cent of the cars offered for sale were equipped with wire wheels, 23 per cent with artillery wheels, and 11 per cent with disk wheels Steel wheels are preferred on trucks

ESTONIA

J Reintam, Office of American Consul, Tallinn

American-made motor vehicles dominate the Estonian market, and local preferences are for accessory equipment Two spare tires are usually carried because of the poor roads Magneto ignition is preferred, owing to the lack of battery-service facilities outside of Tallinn

Dark colors, especially red, are preferred Light and flashy finishes are disliked The road clearance of standard American cars is satisfactory, and no special gear ratio is necessary Artillery wheels are still preferred for passenger cars

FINLAND

Osborn S Watson, American Commercial Attaché, Helsingfors

Closed five and seven passenger cars enjoy a distinct preference in Finland because of the cold winters Dark body finishes are in demand and plated trimmings are greatly liked Passenger cars are usually upholstered in mohair or broadcloth Shock absorbers, radiator shutters, and heaters are widely used, American types preferred The flat steel bumpers are preferred

The metric system is in use, therefore, gasoline gages and speedometers should register accordingly High roads clearance is desired because of the rough roads Disk, wire, and artillery wheels are used on passenger cars, with preference for the latter Steel and wood wheels are used on trucks

FRANCE

W L Finger, American Trade Commissioner, Paris

Automobiles in France are equipped with the most up-to-date contrivances, as in all well-developed automotive markets Practically all bodies are in color, almost none in black Plated trimmings are used to a great extent Upholstery is usually of velour, the color harmonizing with that of the car

The gasoline gage should measure liters The speedometer should register kilometers The preference is for cars of low road clearance. For low-price cars disk wheels are usual, for more expensive cars, wire wheels Disk wheels are usual for trucks up to 4 tons, cast steel for larger trucks

American automobiles are said not to cater to many of the local preferences The lights on American cars are not as powerful as the French desire for fast driving at night, whereas French and other foreign cars meet this demand American cars do not have the desired spot light on the right, as do most foreign-made cars Motorists desire a fuel tank that will carry them 250 or 300 miles, which foreign cars in general do not have The method of carrying tools on American and foreign cars is unsatisfactory Lower road clearance than is provided on American cars is preferred

GERMANY

Douglas Miller, Assistant Commercial Attaché, Berlin

Standard accessories in Germany include single or double bumpers, at least one square tire (two preferred), spot lights, and rear-view mirrors The gasoline gage and the speedometer should register in the metric system Battery ignition is now accepted on American cars, but magnetos are still common on German-built cars Solid tires are prohibited by law except in the case of extremely slow-moving vehicles The leading demand is for artillery wheels, used on about 50 per cent of cars Disk wheels are next, with 40 per cent, and wire wheels are used on 10 per cent Steel wheels are generally preferred for trucks

GIBRALTAR

R L Sprague, American Consul, Gibraltar

Extra equipment on automobiles is very popular in Gibraltar Colored cars are increasing in use, and plated trimmings are greatly liked The road clearance should be fairly high Magneto ignition is preferred Disk and wire wheels are preferred on passenger cars, and artillery wheels on trucks

GREECE

Frederick Lyon, American Commercial Attaché, Athens

Standard equipment is desired on passenger cars Spot lights are prohibited in Athens by police regulations Smart colors, especially bright, 2-color combinations, enjoy a decided preference Leather upholstery is preferred in open and sport-model cars, while closed models usually have mohair or broadcloth upholstery There are no color preferences in upholstery

In Athens and the larger provincial cities there has been a tendency in favor of closed cars In the smaller towns the open car retains its popularity, 5 and 7 passenger cars are preferred Battery ignition is now in general use, although taxi drivers have experienced considerable difficulties with this type There are no preferences in wheel equipment on passenger cars Trucks with steel-spoke wheels are in demand because of the severe overloading and the unfavorable road conditions under which most of the hauling is done

HUNGARY

Walter M Slavik, Assistant Trade Commissioner, Budapest

The average Hungarian car owner desires his car equipped with every conceivable type of accessory Attractive colors with plated trimmings are desired The prejudice in favor of magneto ignition has now been dispelled A hand horn is required by law in addition to the electric horn A turn-signaling device is also required The road clearance should be high on account of the rough roads

The chief complaint against American cars concerns their headlights These are declared neither powerful enough nor focused properly. Foreign manufacturers cater to this preference

IRISH FREE STATE

Cornelius Ferris, American Consul General, Dublin

Approximately 90 per cent of cars sold in the Irish Free State are of the closed type, 5-passenger units are preferred Black predominates in the more expensive types, and maroon, blue, gray, and green are popular in the low-price types The majority of the car owners do not purchase any extra equipment other than standard Magneto ignition is preferred, largely because of the poor battery-servicing facilities The standard American rims are not popular, owing to the difficulty in changing tires and to the lack of proper tire-fitting machinery in garages

ITALY

D F Spencer, Assistant Trade Commissioner, Italy

Closed cars are increasing in popularity in Italy, and 90 per cent of new-car sales are closed models Navy blue is the most popular color, followed by green, maroon, black, and gray Leather upholstery is preferred in sport models Upholstery in closed cars is usually of fabric Battery ignition is now preferred and is the original equipment on 90 per cent of Italian-made cars The minimum road clearance is 9½ inches Artillery wheels are in great demand, disk wheels are used only on the more expensive cars Wire wheels do not enjoy great popularity at the present time Disk wheels are used almost universally on trucks

LATVIA

Lee C Morse, American Commercial Attaché, Riga

The trend in demand in Latvia is for closed cars, however, the higher duties on closed cars make for an artificial demand for open cars Dark shades have been the most common in the past, but bright colors are now increasing in popularity American cars should be equipped with metric gasoline gage and speedometer High clearance is desirable, as the roads are poor and deep ruts common

LITHUANIA

Hugh S Fullerton, American Consul, Kovno

The market in Lithuania is being educated to the use of automobiles, rather than automobiles being adapted to the preferences of the market Machines are sold on their attractive appearance and their ability to resist the rough treatment they receive on being driven over the rough roads.

LUXEMBURG

Frederick L Washbourne, American Vice Consul, Luxemburg

Approximately 55 per cent of the cars in use in Luxemburg are of American origin, and this percentage is constantly increasing The present demand is for closed cars of 5 or 7 passenger capacity with conservative body colors The gasoline gage and the speedometer should be in the metric system Disk or wire wheels are preferred on passenger cars Truck wheels are invariably of the disk type.

European headlights are more popular than those of American manufacture The roads are narrow and never lighted, and American lights are said to be blinding A number of European lighting systems are popular

MADEIRA

J F Huddleston, American Consul, Funchal

Most of the cars sold in Madeira are for use as taxis in the touring trade, 90 per cent of the demand is for touring cars having the usual standard equipment Colored cars with plated trimmings are preferred Registering apparatus in the metric system is required Wire wheels are preferred on passenger cars and disk and steel-spoke wheels on trucks

MALTA

Sidney E O'Donoghue, American Consul, Valetta

In former years the open car dominated the market in Malta, and at the present time some 60 per cent of all cars are open However, there is a trend toward closed cars Modern colors—cream, brown, green, and blue—are preferred The gasoline gage should register British imperial gallons Low road clearance is very popular

MONACO

Robertson Honey, American Consul, Nice

There are no local preferences in Monaco because the market is so small. In general, French preferences apply

NETHERLANDS

Paul S Guinn, Assistant Commercial Attaché, The Hague

Cars equipped according to American standards fully meet the Netherland demand, except that electric direction indicators are required European manufacturers commonly equip their cars with such devices, which are universally employed Colored finishes are popular, though black enjoys some demand American color combinations are considered to be well chosen, but the soft colors are preferred This preference also applies to upholstery

Over 90 per cent of the cars sold are closed models The gasoline gage should be of the metric type, but indications as full, ¾, ½, and ¼ are considered satisfactory The road clearance should not be too high Standard American road clearance satisfies in this respect

German manufacturers equip their cars with a trunk and install the spare tire on one of the front fenders In view of the local popularity of this arrangement, it has been suggested by many dealers that American manufacturers adopt this same principle in cars for export to the Netherlands, as such equipment is highly appreciated by the public

NORTHERN IRELAND

Russell M Brooks, American Consul, Belfast

The automotive market of Northern Ireland is an integral and inseparable part of that of England, and cars meeting requirements there are suitable in every respect to the needs of Northern Ireland. Closed cars constitute almost all of the demand There is a demand for small light cars of the "baby" type, with 3 or 5 passenger capacity

NORWAY

Marquard H Lund, American Commercial Attaché, Oslo

American cars meet with all Norwegian preferences and set the style Somber colors are preferred Four-passenger vehicles are most popular Artillery wheels are in demand on passenger cars. A special gear ratio is sometimes required on trucks, but the standard ratio is sufficient on passenger cars Norwegian roads are narrow and tortuous, as a result, excessively long cars are not popular, and some cases are known where such cars have been refused registration

POLAND

Gilbert Redfern, Assistant Trade Commissioner, Warsaw

Bumpers, two spare tires, rear-view mirror, and tire covers are usually demanded in Poland Such interior decorations as a small flower vase, vanity case, smoking case, lighters, etc , are good selling points Spot lights, as a rule, are purchased locally, as are direction indicators The latter are obligatory for closed cars Bright colors have become very fashionable Closed cars are more in demand than a few years ago, with 5-passenger sedans leading in popularity Open cars now average 15 per cent of the total automobile sales Two-door sedans are not popular, owner-drivers preferring coupés A sedan owner almost invariably has a chauffeur, the relations between car cost and a chauffeur's upkeep being very different than in the United States Moreover, Polish owners, as a rule, do not give personal attention to their cars

RUMANIA

Sproull Fouché, American Commercial Attaché, Bucharest

Standard accessories, such as bumpers, spare tires, and rear-view mirrors, are in demand in Rumania There is also a considerable demand for theft-proof radiator and gasoline-tank caps, in order to prevent petty pilferage

Owing to the difference in import duties, open cars were formerly most popular However, since the operation of the present tariff, imports of closed cars account for 70 to 80 per cent of the total Wire wheels are preferred on passenger cars and steel wheels on trucks.

SPAIN

Charles T Hohenthal, Office of American Commercial Attaché, Madrid

Closed cars account for 95 per cent of total sales in Spain Those having a large seating capacity are preferred, inasmuch as car owners often employ chauffeurs and, in addition, customarily take the entire family with them when touring or making excursions

Batteries are gaining in popularity It has been reported that American batteries should be of a higher voltage for the Spanish market At present some criticism is made of American headlights, in that they are not powerful enough.

In general, dark colors are preferred Plated trimmings are in wide demand Upholstery of leather or imitation leather is preferred In the case of cloth upholstery, French designs appear to be the most popular

SWEDEN

Basil D Dahl, Assistant Trade Commissioner, Stockholm

Most cars sold in Sweden are equipped with a spare tire, bumpers, and a rear-view mirror Black is the customary color of cars on the market, but of late other dark colors—maroon, green, and brown—and 2-color bodies have become popular, especially on roadsters and sport models There is a small demand for solid tires on very slow-moving vehicles Artillery wheels are widely used on passenger cars, with some demand for disk and wire wheels Light trucks are usually equipped with wooden wheels and heavier units with steel wheels

SWITZERLAND

Kenneth M Hill, Assistant Trade Commissioner, Berne

Spot lights are now found on approximately 30 per cent of all Swiss cars, but the trend is away from the use of such lights Certain types have been forbidden by law, and a few Cantons will probably prohibit their use entirely There is an increased use of small auxiliary headlights and side lights to facilitate country driving Windshield wipers are popular Direction indicators are increasing in popularity There are several types on the market, chiefly of local manufacture The most popular ones are illuminated arrows visible from the front and the rear of the automobile

Closed 5-passenger cars are the most popular, followed by 2-passenger, 4-passenger, and 7-passenger models All cars should be equipped with instruments recording in the metric system Battery ignition is almost exclusively used Artillery wheels lead in popularity on passenger cars, the ratio of all cars having such wheels being estimated at 85 per cent Wood wheels are also preferred on trucks

TURKEY

John T Harding, Assistant Trade Commissioner, Istanbul

The popular Turkish preference is for showy and bright accessories, the people prefer such articles to plain ones which may be of better quality Dark shades of green and red are in demand, with as much plated trimmings as possible Leather upholstery is preferred in both open and closed cars

There is a very decided and growing preference for closed cars All cars should have speedometers registering kilometers An American gasoline gage is acceptable, inasmuch as the popular unit of measure is the ordinary 5-gallon can Battery ignition is preferred, but all vehicles sold for governmental use must be equipped with magneto ignition Disk and wire wheels are in demand for passenger cars Steel wheels are preferred on heavy trucks

YUGOSLAVIA

Stewart E McMillin, American Consul, Belgrade

Automobiles in Yugoslavia are usually equipped with bumpers, spare tires, and rear-view mirrors Spot lights are very popular Fancy-colored finishes with plated trimmings are preferred Gages and speedometers should be in the metric system Most of the passenger cars have artillery wheels, but the use of wire wheels is increasing considerably.

ASIA

American cars set the styles and mold the preferences in practically every section of the Asiatic Continent. In general, it may be said that accessories of all kinds are very popular everywhere. Bright colors and showy trimmings are likewise in favor. The open car maintains its position in the Near East and the East Indies. The closed car is preferred in China, Japan, Chosen, and the Philippines. Leather upholstery is greatly in demand in open cars, as it is considered to be cooler and more adaptable to warm or moist tropical weather. High road clearance is desirable in most cases when traveling outside of cities. There is a wide divergence in the use of gasoline gages. The imperial gallon is the standard of measure in many sections of Asia, yet most cars exported from the United States have the standard American gallon gasoline indicator, and there does not appear to be any considerable criticism from car buyers. In the case of speedometers, there is no absolute preference in many countries, and speedometers registering in miles are usually satisfactory.

RULE OF THE ROAD AND DRIVE PREFERENCES IN ASIA

Country	Rule of road	Drive preferences
Arabia	Left	Right hand
British Malaya	do	Do
Ceylon	do	Right-hand, left prohibited
China	do	Right hand
Chosen	do	Do
French Indo-China	Right	Left-hand
Hong Kong	Left	Right hand, left prohibited
India	do	Right hand, left prohibited in many cities
Japan	do	Right hand, left hand drive is extensively used
Netherland East Indies	do	Right-hand
Palestine	Right	Left hand
Persia	do	Left or right hand
Philippine Islands	Left	Right-hand
Siam	do	Do
Syria	Right	Left-hand

ASIATIC BASIC CONSTRUCTION PREFERENCES

Country	Passenger-car types	Ignition		Road clearance	Wheels	
		Passenger cars	Trucks		Passenger cars	Trucks
Arabia	Open 5 passenger	Magneto	Magneto	No preference, high for desert use	Wood	Steel spoke
British Malaya	Closed 5-passenger	Battery	Battery	No preference	Wire, wood	Disk, steel spoke
Ceylon	Open 5 passenger	do	do	Ordinary	do	Wood
China	70 per cent closed	Battery and magneto	Battery and magneto	High for interior	Disk wood, wire	Wood, disk
Chosen	Closed with glass partition shutting out chauffeur	Battery	Battery	High outside of cities	Wood, disk, and wire	Wood
Hong Kong	50 per cent 5 passenger open	do	do	Low	Disk and wire	Steel spoke
India	80 per cent closed	do	do	9 inches	60 per cent wire, 30 per cent disk	Do
Iraq	90 per cent open	do	do	High	Wire and wood	Disk and steel spoke
Japan	63 per cent closed	do	do	do	Wood and disk	Disk and steel spoke, wood for light units
Netherland East Indies	Open touring cars	do	do	Average	Wire and wood	Wood
Persia	Open 7-passenger touring	do	do	High	Wire	Disk
Philippine Islands	90 per cent closed, 70 per cent 5 passenger, 20 per cent 7-passenger	do	Battery and magneto	Low in cities	Wood	Steel spoke
Syria	60 per cent open, closed on ascendancy	do	Battery	High	Wood, wire, disk	Disk, wire, steel spoke

ASIATIC EQUIPMENT AND FINISH PREFERENCES

Country	Accessory equipment	Body finish	Gasoline gage	Speedometer	Tires	
					Passenger cars	Trucks
Arabia	Bumpers, spare tire, rear-view mirror	Dark, nickel trimmings	British	Miles	Full balloon	Solid
British Malaya	Bumpers, spare tire	Green, dark red, and blue	do	do	Balloon	Pneumatic
Ceylon	Complete	Bright colors with plating	do	do	High pressure and balloon	Do
China	Standard	Colors with trimmings	United States	do	Balloon	Do
Chosen	Standard, with dome light	Soft colors, no black, trimmings	do	do	do	Do
Hong Kong	All	Bright colors with trimming	British	do	do	Do
India	Complete, including trunk rack	Bright colors	do	do	do	Do
Iraq	Bumpers and rear view mirror	Light	do	do	do	Do
Japan	Bumpers, spare tire, rear-view mirror	Colors, striped plating	United States	do	do	Do
Netherland East Indies	Bumpers, rear view mirror, window wiper	Light colors, trimmings	Metric	Kilometers	do	Do
Persia	Bumpers, spare tires, mirrors, and all kinds of accessories	Colors (never green), plating	No preference	do	do	Do
Philippine Islands	Similar to United States	Colors and plating	United States	Miles	do	Solid and pneumatic
Syria	Minimum	do	do	Kilometers	do	Pneumatic

ARABIA

Cloyce K Huston, American Vice Consul, Aden

Open 5-passenger cars are in greatest demand in Arabia Black body finish with suitable stripes is the favorite color Dark upholstery of strong, durable materials should be provided The use of green should be avoided, in either upholstery or body finish Magneto ignition is preferred, but natives are getting used to battery ignition Road clearance is of little importance except when the vehicle is for use in the desert, where high road clearance is required Solid tires are used on 50 per cent of the trucks Standard gear ratio is satisfactory for driving in the seaport towns, but a special gear ratio is appreciated if the car is to be used to any great extent in the interior, where the desert sand presents traction problems

BRITISH MALAYA

Don C Bliss, American Trade Commissioner, Singapore

The closed car is gaining in popularity in British Malaya, particularly in the medium and high price classes The most popular seating capacity is five, and scarcely any larger models are sold Bumpers and rear-view mirrors are usually original equipment on all cars Spot lights are prohibited by local legislation in Singapore Nickel or chromium plated trimmings are greatly admired, and colors are in demand in the cheaper cars, green being particularly favored by Malaya and dark red and blue by others In the more expensive cars, black is still popular Leather upholstery in colors harmonizing with the body finish is preferred Unusual road clearance is not considered important

Disk wheels are not in favor in Singapore, buyers preferring wire or artillery wheels about equally British cars sold there usually have artillery wheels, and the American cars have wire wheels Wood or steel-spoke wheels are preferred on trucks, especially the latter on heavy-duty vehicles

CEYLON

Llewellyn E Thompson, American Vice Consul, Colombo

Open cars are the most popular in Ceylon, because they are considered cooler

There is a strong preference for colors in body finish, particularly among the native population Flashy light colors and plated trimmings are very popular Spot lights are widely used in the interior Leather upholstery is the most practicable because of the weather, brown is one of the most popular colors for upholstery

Side lights, in addition to headlights, are in demand on closed models A ceiling light is a decided advantage Quite often this light is used while the car is being driven, if only to satisfy the vanity of the owner

CHINA

A Viola Smith, American Trade Commissioner, Shanghai

As a general rule, new cars in the Shanghai district of China are equipped with bumpers, spare tire, and rear-view mirror American manufacturers equip their cars with more accessories than do European manufacturers doing business on the market A wide variety of colors is preferred Plated trimmings are also preferred Mohair upholstery is generally preferred on closed cars, which accounts for approximately 70 per cent of all types Battery ignition is preferred except in remote interior centers, where servicing facilities are inadequate and native drivers unskilled Low road clearance is satisfactory in the treaty port of Shanghai, but for interior use high clearance should be provided The use of solid tires is discouraged by heavy taxation There is no marked preference for any one type of wheel on passenger cars, approximately 40 per cent of those in use are disk, 40 per cent wood, and 20 per cent wire Wood or disk wheels are preferred on trucks

There is a demand for extra equipment in the form of bulb horns, extra tail lamps, flower vases, ash receivers, cigarette lighters, etc , which are not supplied as original equipment by either American or European manufacturers

Wilbur K Hoyt, Assistant Trade Commissioner, Mukden

The bulk of the cars sold in the three Eastern Provinces of China are equipped with bumpers, spare tires, rear-view mirror, and an arrow which can be illuminated at night to indicate the direction of turning The use of this indicator is compulsory in Mukden and Harbin Very few spotlights are sold, as night driving in the country is not considered safe and they are not required for city driving

Practically all of the passenger-car bodies are finished in colors with plated trimmings No one color predominates, but blue, green, and brown are probably the most popular Upholstery is divided about equally between plush and leather The most popular type of passenger car is the 4-door, 5-passenger sedan Most passenger cars are equipped with battery ignition, although there is some sentiment among Chinese in favor of the magneto type

Louis C Venator, Office of American Commercial Attache, Peiping

Body finish in North China is not extremely important, although there is a noticeable popularity of colored cars with plated trimmings. Closed cars with a large seating capacity are preferred The magneto system is still used on those cars that are going into the interior The speedometer may indicate miles The Chinese unit of measure is the li (approximately ⅓ mile), but most Chinese motorists think in terms of miles when motor cars are concerned There does not appear to be preferences for any particular type of wheels, with the exception of a slight preference for disk wheels on trucks

CHOSEN

C H Stephan, American Vice Consul, Seoul

Complete standard accessories are required on all cars sold in Chosen, in addition to others required by law These latter include dome light, mud splashers, and special tail light The present tendency is for the purchase of closed cars with a large seating capacity The larger and better cars of prominent officials of the Government and wealthy Japanese are all made with glass partition at the back of the front seat shutting out the chauffeur

HONG KONG

Harold Shantz, American Consul, Hong Kong

All kinds of accessories are in demand in Hong Kong As a rule, those cars imported from the United States satisfy in this respect, whereas British cars are not usually equipped with accessories Bright-colored cars with exterior trimmings are popular Approximately 50 per cent of the cars in use are 5-passenger open cars

The district contains many very steep grades Accordingly, automotive vehicles equipped with a special gear ratio are in demand

INDIA

Donald W Page, American Trade Commissioner, Calcutta

Approximately 80 per cent of the cars in use in India are closed models, of which those having 5-passenger capacity lead All accessories are popular, including bumpers, spare tires, spot lights, and luggage carriers Light-colored upholstery of leather or imitation leather is preferred There is an inclination toward the British gasoline indicator, but at present this is not insisted upon Wire wheels are used to a considerable extent It is estimated that 60 per cent of the new passenger cars are equipped with wire wheels, 30 per cent disk, and 10 per cent artillery Steel-spoke wheels are preferred on trucks

IRAQ (MESOPOTAMIA)

Alexander K Sloan, American Consul, Baghdad

Bumpers and rear-view mirrors are standard equipment on most cars in Iraq Spot lights are not widely used Approximately 90 per cent of the cars in use are open Light blue, maroon, and light green are popular for the body finish The upholstery is usually of leather, with brown and grey the favorite colors The road clearance on all cars shipped to Iraq should be high Wire wheels are preferred for private passenger cars, artillery for taxicabs Disk and wood wheels are preferred on trucks

JAPAN

Paul P Steintorf, American Trade Commissioner, Tokyo

From 85 to 95 per cent of current passenger-car sales in Japan are for use for taxi or hire services Nearly all must be equipped with two extra seats in order to seat five in the tonneau In order to do this, the front seat is usually moved forward to provide sufficient space Colors are used almost exclusively, but they are of a subdued tone Dark blue is the most popular, with shades of green next Maroon (or dark red) can not be used since it is used by the imperial family

Spot lights are used to some extent, and their use is increasing. Stop lights are popular and are usually purchased if not included as original equipment The Japanese regulations require the installation of the following extra equipment A bulb horn in addition to the usual electrical or mechanical horn, detachable mud splashers attached to all four wheels, and the tail light so constructed that it can not be extinguished from the interior of the vehicle The mud splashers are of a special type and are always manufactured locally

NETHERLAND EAST INDIES

Thomas C Barringer, American Trade Commissioner, Batavia

Colored vehicles are the most popular in the Netherland East Indies Light-colored upholstery and plated trimmings are likewise popular At present the open car is distinctly preferred Sales of closed cars in 1929 were approximately 15 per cent of the total Gasoline gages should be in liters and speedometers in kilometers Standard American road clearance is satisfactory for local conditions; all roads are asphalted or metaled Wire and artillery wheels lead in popularity on passenger cars On the light trucks wood wheels are more desired than steel spokes Disk and wire wheels are unpopular for trucks

The Netherland East Indies is distinctly an American-car market, American passenger cars representing 84 per cent of the market and trucks 94 per cent American cars, designs, and equipment are the standards of public opinion

PERSIA

Henry S Villard, American Vice Consul Teheran

There is an overwhelming preference for passenger cars with a large seating capacity, since the owner of an automobile usually takes his family or friends with him when out riding Open cars considerably outnumber closed cars This is partly due to the fact that sooner or later most cars in Persia are placed in the transport business, and it is comparatively easy to load the open car with passengers and luggage

In general, a colored body finish is preferred to plain black, but green should not be used because it is regarded as a sacred color Accessories are very popular High road clearance should be provided on cars shipped to Persia The British imperial gallon is used by the leading gasoline distributor, and gasoline gages showing imperial gallons are preferred The speedometer should register kilometers

A special gear ratio is almost always necessary on trucks because of the mountain ranges that are encountered in almost every trip of any proportions In the case of passenger cars a special gear ratio is preferred, though not absolutely necessary

PHILIPPINE ISLANDS

Clarence P Harper, Assistant Trade Commissioner, Manila

There are no unusually automotive preferences in the Philippines other than the right-hand drive Right-hand drive is not required by law, but it is preferred in view of the custom of traffic keeping to the left Battery ignition is used on most cars, although many trucks still use magnetos Balloon tires are by far the most popular on passenger cars and are becoming increasingly so on busses and trucks In the case of trucks, the demand is about equally divided between pneumatic and solid tires, with a trend toward pneumatic tires

SYRIA

D F McGonigal, American Vice Consul, Beirut

Preference in Syria is for standard American equipment, but there is little demand for accessories aside from bumpers Colors and plated trimmings are preferred The present ratio of open cars to closed is about 60 to 40, but the new-car preference is for closed cars. Leather upholstery is most popular on open cars and soft fabrics for closed cars. High road clearance is preferred because of the condition of local roads. Solid tires have been prohibited by law.

AFRICA

In some African markets, such as Egypt and the Union of South Africa, the equipment and construction preferences are similar to those of any other well-advanced automotive markets.

However, other sections of the continent present such peculiar conditions that particular attention must be given to the equipping and construction of automobiles destined for use in those markets. Sturdy construction and large seating capacity are important factors in the sale of an automobile. Automobiles in Africa operate under very trying conditions and are subjected to rough treatment. Large seating capacity is preferred in most sections, especially for native use. Overloading is common, and little attention given to the actual capacity of the car.

Because of many poor roads and lack of bridges, high road clearance is advantageous. Magneto ignition is preferred on cars that are to be used in remote sections of the continent because of the poor facilities for charging batteries. Bright colors are popular in most markets. The upholstery is usually of leather or imitation leather, since the humidity and dust make it difficult to keep fabric upholstery clean.

RULE OF THE ROAD AND DRIVE PREFERENCES IN AFRICA

Country	Rule of road	Drive preferences
Algeria	Right	Left-hand
Angola	do	No preference
Belgian Congo	do	Left-hand
British East Africa	Left	Right-hand
British West Africa	do	Do
Canary Islands	Right	Do
Egypt	Left	No preference
French West Africa	Right	Left-hand
Gold Coast	Left	Right-hand
Madagascar	Right	Left-hand
Mauritius	Left	Right-hand
Morocco	Right	Left-hand
Portuguese East Africa	Left	Right-hand
Tunisia	Right	No preference
Union of South Africa	Left	Right-hand

AFRICAN BASIC CONSTRUCTION PREFERENCES

Country	Passenger car types	Ignition		Road clearance	Wheels	
		Passenger cars	Trucks		Passenger cars	Trucks
Algeria	70 per cent closed 5 and 7 passenger	Battery	Battery	Low	Disk ordinarily, wire on high price cars	Disk or steel spoke
British West Africa	60 per cent open cars	Magneto	Magneto	High	Wire, steel spokes	Do
Egypt	70 per cent open	do	do	Little preference	Wire or disk	Disk
Ethiopia	Closed 5 passenger	do	do	High	Wood and disk	Disk and steel spoke
French West Africa	do	No preference	No preference	About 9 inches	Disk or wire	Disk
Morocco	88 per cent closed, 7 per cent touring, 5 per cent roadsters	Battery	Battery	High	Disk ordinarily, wire on high-price cars	Disk and steel spoke
Portuguese East Africa	60 per cent open	do	do	do	Disk and wire	Do
Tunisia	95 per cent closed	Magneto and battery	Magneto	No preference	do	Disk
Union of South Africa	Closed 5 passenger	Battery	Battery	Medium to high	No preference	Disk and steel spoke

African Equipment and Finish Preferences

Country	Accessory equipment	Body finish	Gasoline gauge	Speedometer	Tires	
					Passenger cars	Trucks
Algeria	Bumpers, spare wheel, rear-view mirror, clock	Black for closed cars, lighter hues for open cars	Metric	Kilometers	Balloon	Pneumatic
British West Africa	Spare tire, rear view mirror	Dark blue with plating	United States	Miles	do	Do
Ethiopia	Minimum, with spare tires	Bright colors, 2 tone	Metric and others	Kilometers and others	do	Do
Egypt	Complete	Black and dark for closed models, plating	Metric	Kilometers	do	Do
French West Africa	Original equipment	Bright	do	do	do	Do
Morocco	Bumpers, spare wheel, rear view mirror, wiper, trunk rack	Varied, with nickel trimmings	do	do	do	Do
Portuguese East Africa	Average	Colored	United States	Miles	do	Do
Tunisia	Bumpers, spare tire, rear-view mirror	Dark, not black	Metric	Kilometers	do	Do
Union of South Africa	Standard	Conservative	British and United States	Miles	do	Do

ALGERIA

Oscar S Heizer, American Consul, Algiers

About 70 per cent of new-car sales in Algeria are closed models Black or subdued colors are preferred for closed cars, and lighter shades of grey, blue, yellow, green (not too bright), and red are preferred for roadsters and touring cars Automobiles having the largest seating capacity are the most popular In this respect American cars are said to be unpopular, whereas European cars with folding seats are greatly admired The lights on American cars are considered weak Cars having four speeds forward are greatly liked, owing to the habit of native drivers in traveling long distances at top speed

The purchase of an automobile is a very important matter, and too much importance can not be given to the execution of orders Special attention should be given to color and equipment specifications

BRITISH WEST AFRICA

G R Willson, American Consul, Lagos

No unusual accessories are in demand in British West Africa, with the possible exception of double-sounding or musical horns These are very popular with the natives Plated trimmings are admired, but do not stand up well in the climate, especially nickel or steel The general opinion of dealers is that leather or a good grade of imitation leather is preferred to any cloth fabric for upholstery Fairly bright colors are more likely to appeal to native buyers

Five-passenger open cars are the most popular The road clearance for cars to be used for ordinary travel in Sierra Leone and Nigeria should be about 9 inches If the car is to be used in the interior, a very high road clearance is essential Wooden wheels do not stand up well, since only wood of exceptional quality can give good results under the alternate expansion and contraction caused by the usual great humidity and the extreme dryness during the harmattan season

The magneto system is almost universally preferred Batteries are usually thrown away when the original charge is exhausted Owing to the high cost of gasoline, cars having low gasoline consumption are the most popular British manufacturers cater to this preference, and also to the demand for right-hand drive cars In Sierra Leone left-hand drive cars can be imported only upon consent of the Government in each individual case

J Francis Fov, Assistant Trade Commissioner, Accra

Spare tires are always carried by local operators in the Gold Coast, rear-view mirrors are compulsory by law, spot lights are very seldom used There is a decided preference for colored body finishes, especially in the darker blues Plated trimmings are in demand Preferences for upholstery in open cars run to dark brown, light brown, black, and grey Spanish leather In closed cars the light brown, dark brown, and grey fabrics are preferred The closed car is gaining in popularity

On account of the poor condition of the majority of roads in the colony, a high road clearance is preferred, practically all cars are used in bush work, and high road clearance is absolutely necessary. Magneto ignition is preferred Solid tires are prohibited by law

EGYPT

Charles E Dickerson, American Commercial Attaché, Cairo

For cars in all price ranges the following equipment is desired in Egypt Bumpers, two spare tires, rear-view mirror, cigar lighter, and bulb horn With regard to the dashboard, the more complete it is the better it is liked Approximately 70 per cent of the cars in the country are open models Black and dark colors are preferred for closed cars, light colors for open cars In the medium and high price classes plated trimmings are important, while in the cheaper classes this factor is not essential, though preferred Although the liter gasoline gage is preferred, there is some demand for ¼, ½, ¾, and full gage

The only noticeable preference which the American manufacturer does not provide, and which an Italian car offers with some success, is a large body on a low-power car, especially in the sedan models

ETHIOPIA

Addison E Southard, American Consul General, Addis Ababa

Bright-colored automobiles are preferred in Ethiopia, with red and green particularly in favor, black or other somber colors should never be used Cloth upholstery of any type is much preferred to leather or imitation leather About four-fifths of the demand is for closed cars The law limits to five the number of people, including driver, who may be carried in a car There is, however, a tendency always to crowd many more people into one car, as local owners are not concerned as to the damage which may be done to the car by overloading

The metric gage for gasoline and a speedometer showing distance in kilometers are preferred Road clearance should always be high because of the extremely poor roads, even in the cities Magneto ignition is preferred, facilities for charging batteries are very inadequate

FRENCH WEST AFRICA

George C Cobb, American Consul, Dakar

Most cars in French West Africa are equipped with bumpers, spare tire, and rear-view mirror when sold, and little is added by the purchaser The preference as regards the body finish of passenger cars tends toward colors Certain American cars which are popular on the market have bodies finished in various neutral tones with trimmings in more brilliant colors Leather or imitation-leather upholstery is more popular than fabric, because of the difficulty in keeping cloth upholstery clean European cars are imported with magneto ignition, but the natives are learning the advantages of battery ignition, and at the present time there is said to be no distinct preference in this regard

MOROCCO

Frederick K Henrotin, American Vice Consul, Casablanca

Extra equipment is an important sales point in French Morocco Most European manufacturers equip their cars with trunks, and it is believed that if American manufacturers did likewise it would facilitate the sales of their products At any rate, a trunk rack should be provided Individualistic colors are in demand, as purchasers do not wish to have a car of which a large number of similar models are already in use Closed cars account for about 88 per cent of the sales Large seating capacity is preferred The road clearance should always be high

Horace Remillard, American Consul, Tangier

There are no local preferences of any kind in the Spanish and international zones of Morocco Nearly all American and European cars are represented on the market and are accepted as delivered While spot lights do not appear to be imported in any quantity, they would be useful to motorists, as the country is hilly and requires excessive care in taking sharp curves All registering apparatus should be in the metric system Road clearance should be high Wire and disk wheels are preferred on passenger cars, the artillery type not being used Steel-spoke wheels are preferred on heavy trucks and disk wheels on light trucks

PORTUGUESE EAST AFRICA

W Quincy Stanton, American Vice Consul, Lourenco Marques

Light vehicles, both passenger and truck, lead in demand in Portuguese East Africa There are very few good roads in the colony except immediately around Lourenco Marques In many respects the topography is similar to the western part of the United States Ruggedness, power, speed, and high clearance are more important than fuel economy, despite the high cost of gasoline Heavy cars and trucks are not in demand, as there are few bridges in the interior, most of the creeks are crossed by fords A sudden tropical rainstorm—a frequent occurrence—will swell a trickling rivulet into a 3-foot flood in a half hour, so that light weight is an important element

TUNISIA

Charles B Beylard, American Vice Consul Tunis

Dark colors rather than black are generally preferred on closed cars in Tunisia, which constitute 95 per cent of the demand The usual equipment on imported cars consists of bumpers, spare tire, and rear-view mirrors Spot lights, automatic windshield wiper, and two different warning devices for town and country are desirable equipment

The magneto ignition is still popular, but batteries are now more common There are still few charging stations to be found in the interior, and cars destined for use there should be equipped with magnetos Gasoline is expensive, and European cars are preferred somewhat, in that their gasoline consumption is lower than that of American cars

UNION OF SOUTH AFRICA

Samuel H Day, American Trade Commissioner, Johannesburg

There are no local preferences in the Union of South Africa which the American manufacturers do not cater to The American car is the standard Ninety per cent of the cars sold are closed models, of which 85 per cent are 5-passenger vehicles Dark, conservative colors are preferred Leather upholstery is preferred, even in closed cars The reason why the percentage of leather-upholstered vehicles is not greater is wholly that one American make of automobile is unobtainable except with cloth upholstery A sale is often lost because leather upholstery can not be supplied without extra cost

The equipment of American cars is very satisfactory Right-hand drive should be provided on all cars shipped to South Africa There is no definite preference for any particular kind of wheel on passenger cars The heavy disk and steel-spoke wheels are preferred on trucks. Pneumatic tires are the choice of every type of gasoline truck The only use for solid tires at the present time is on the steam wagon, a number of which are in operation

OCEANIA AND HAWAII

A very large percentage of the cars in use in the principal markets of Oceania and Hawaii are of American origin The latest models of American cars are known to the car-buying public almost as soon as they are announced in America, and care must be exercised not to ship cars that will be out of date when they arrive at their destination The outstanding preference, other than the usual American standards, is for right-hand drive This is due to the fact that the rule of the road is to the left in Australia, New Zealand, and smaller British islands

In the French possessions the metric system is in use, and the gasoline gauges and speedometers should be so arranged In the British possessions, the gasoline gages should register British imperial gallons The United States gallon is the standard in American Samoa

RULE OF THE ROAD AND DRIVE PREFERENCES IN OCEANIA AND HAWAII

Country	Rule of road	Drive preference
Australia	Left	Right (left-hand drive prohibited in some localities)
Hawaii	Right	Left-hand
New Zealand	Left	Right-hand
Fiji Islands	do	No preference

BASIC CONSTRUCTION PREFERENCES IN OCEANIA AND HAWAII

Country	Passenger-car types	Ignition		Road clearance	Wheels	
		Passenger cars	Trucks		Passenger cars	Trucks
Australia	Closed	Battery	Battery	High	Wood, some wire	Wood, steel spoke
French Oceania	Open touring	do	Battery and magneto	9½ inches	Wood, wire, disk	Wood
New Zealand	85 per cent closed	do	Battery	Low	Wood, wire	Wood, steel spoke
South Sea islands	Closed, 5 or 7 passengers	do	do	High	Wood	Steel spoke

EQUIPMENT AND FINISH PREFERENCES IN OCEANIA AND HAWAII

Country	Accessory equipment	Body finish	Gasoline gage	Speedometer	Tires	
					Passenger cars	Trucks
Australia	United States standard	Increasing popularity of light colors	British	Miles	Balloon	Pneumatic
French Oceania	Bumpers, windshield wipers, mirror, spare tire	Blue and black with trimmings	United States and metric	Kilometers and miles	do	Do
New Zealand	Bumpers, spare tires, rear-view mirror	Bright colors	British	Miles	do	Do
South Sea Islands	Regular	Colors, with plating	British and United States	do	do	Do

AUSTRALIA

Charles F. Baldwin, American Trade Commissioner, Sydney

In general, the preference for accessory equipment on motor vehicles in Australia is practically the same as in the United States, with the exception of certain of the newer type of accessories, such as turning lights, etc., which are not widely used. Since the development of the domestic accessory-manufacturing industry, a great many of the accessories on cars sold in Australia are manufactured in the Commonwealth. This is true of bumpers, spare tires, luggage carriers, sun shields, etc. Spot lights are not in wide use.

The variety of body colors on automobiles is less than in the United States. Within recent years there has been some tendency toward an increasing use of brighter colors and, on higher priced cars, of a multicolor effect. The upholstery is usually in harmonizing colors with the body. Imitation-leather upholstery, either figures or plain, is most widely used.

Closed cares are in greater demand than in the past. It is estimated that 95 per cent of the cars in the class above £500 are of closed models. In the class ranging from £350 to £500 approximately 65 per cent of the sales are closed types. The 5-passenger cars are greatest in demand, although there is a large sale of roadsters, both with and without auxiliary seats, and of closed and convertible coupés.

Most chassis imported from the United States are equipped with United States gasoline gages, and these are used in spite of the fact that the imperial gallon is the standard of measure. When replacements are made, the British gage is usually preferred.

Local preferences are well catered to by American manufacturers, and the success of American cars is attributable, to a considerable extent, to the willingness of American manufacturers to conform to Australian requirements where those requirements are different from those in the United States. In the case of the preference for high road clearance, the American car was eminently suitable for Australian requirements, whereas the English and Continental cars were generally unsuitable.

NEW ZEALAND

Julian B Foster, American Trade Commissioner, Wellington

Bumpers, spare tires, rear-view mirrors, and other accessories are practically all fitted on cars in New Zealand Very few spot lights are used Bright-colored vehicles are exceedingly popular Multicolored cars are also popular Light upholstery in preferred When leather upholstery is used, it should be in harmonizing colors with the body and of a soft and pliable nature It is claimed that the leather upholstery used by American manufacturers is hard, and that the local preference for soft leather is being catered to by British manufacturers

About 15 per cent of cars are open and 85 per cent closed The sedan models are the most popular As a rule, imported vehicles have gasoline gages which are standard in the country of origin American cars now in operation usually are equipped with a United States standard gallon indicator The use of disk wheels is decreasing Artillery wheels are the most popular for passenger cars, although wire wheels are being increasingly seen Wood and steel-spoke wheels are the most popular for trucks

FRENCH OCEANIA

William P Garrety, American Consul, Tahiti

Approximately 90 per cent of the cars in operation in French Oceania are open touring cars These cars are equipped with the usual standard equipment, such as bumpers, rear-view mirror, etc Spot lights are prohibited by law The general preferences in color are for multicolored cars, of dark blue and black The upholstery is usually of dark leather

All the cars in use, with the exception of one make, have a speedometer in kilometers Motor vehicles have gasoline gages of the same type as are used in the countries of origin A road clearance of 9½ inches is entirely satisfactory

SOUTH SEA ISLANDS

Quincy F Roberts, American Consul, Suva

The Fiji Islands, American Samoa, Gilbert and Ellice Islands, Solomon Islands, and Tonga are island groups where road conditions and distributing methods for automotive vehicles are much the same About 33 per cent of the cars now being imported are closed models, and by the end of 1930 it is believed that 50 per cent of the cars in use will be closed Colors with plated trimmings are preferred by local purchasers Leather upholstery is the most popular, but textiles are used in the cheaper cars

With the exception of American Samoa, these colonies and island groups use British imperial gallons In American Samoa the American gallon is the unit of measure Consequently, exporters should ascertain where the car is to be operated in order that the correct gasoline gage be used

U. S. DEPARTMENT OF COMMERCE
R P LAMONT, Secretary
BUREAU OF FOREIGN AND DOMESTIC COMMERCE
WILLIAM L COOPER, Director

AIRPORTS IN LATIN AMERICA

Trade Information Bulletin No 696

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FOREWORD

Commerce and industry continues to demand greater speed in passenger movement, in the transmission of written messages, and in the transportation of valuable and perishable goods The world's network of airways has spread to every continent and developments in this respect have been particularly gratifying in South America It is connected with the United States and Canada by several air lines and with Europe by a combined service of aircraft and fast steamers

Our entire business community is concerned with the growth of aeronautical activities in Latin America, where there are some 44,000 miles of air lines in regular, scheduled operation and some 375 civil aircraft in use These developments have come largely since the beginning of 1926 and are certain to be continued in increasing importance

This bulletin is devoted to airports, landing fields, and weather conditions in Latin America It has been prepared with the hope that it will be of value to the aircraft industry Representatives of the United States Government as well as of the air-transport organizations have contributed much of the information it contains, and an effort has been made to limit it to the most accurate data available It will be revised and extended from time to time as new developments and new conditions arise

CLARENCE M YOUNG,
Assistant Secretary of Commerce for Aeronautics

MAY, 1930

AIRPORTS IN LATIN AMERICA

By J Warren Angle and Brower V York, Aeronautics Trade Division

There are approximately 44,000 miles of airways in regular operation in Latin American countries This mileage is more than three times that of December, 1928, and most of that mileage was inaugurated after January 1, 1926

There are some 375 civil aircraft in Latin American countries, and more than half of these are employed in regular air-transportation services Considerable numbers of these planes are owned by flying clubs and a few by individuals and governments

Prior to 1926 the regular air services used seaplanes, and no extensive terminal facilities were prepared Until recently most of the planes employed in regular services, as well as those owned by flying clubs and individuals, were small and did not require well-prepared landing fields as much as do the large planes now in use. Flying was sporadic and enjoyed by only a few people There was no considerable demand for well-equipped airports

A few airports were developed to a degree by flying clubs and by governments for the use of civil planes Government authorities, both military and naval, in many of the countries provided military landing fields, at which there were set up shops and other facilities considered essential With the introduction of more regular services, some of the operating companies have prevailed upon their governments to provide landing fields and airports, while other companies have provided terminal and route landing facilities of their own A few landing fields and more or less developed airports have been provided by municipalities and States, but the trend is toward their provision by national governments, operating companies, and flying clubs

Climatic conditions have proven to be an important factor in the preparation of landing facilities throughout the area In the more tropical regions where frequent and heavy rains and consequent thick vegetation and scattered business communities exist there has been less flying, while Mexico, Cuba, the southeast coast of Brazil, the western plains of Peru, and most of the territory of Chile and Argentina have seen more flying and more airport and landing facilities developed Since there is need for quick communication between the distant communities in the tropical areas, as well as those farther south and north, it is expected that landing grounds and airports, as well as highways and railways will be prepared. The rough nature of the country proves a hindrance in the preparation of airports as well as highways.

The introduction of regular air services across the Andes between Chile and Argentina, around most of the coast of South America, and through the West Indies, Mexico, and Central America has caused the preparation of more or less well-developed landing fields and airports The long distances between important business centers must be bridged, and, even for aircraft, considerable time is required Facilities for refueling and occasionally minor repairs are essential It is expected that the provision of airports, which has taken place within the last six months and is gaining momentum, will cause increased local flying, the constant improvement of present airports and landing fields, and the provision of others in large numbers

There is a scarcity of weather information, and fliers should make every effort to secure all such information that can be had Over certain areas of Latin America the weather is practically constant In others it changes regularly, and in some there is uncertainty. The Brazilian Government maintains a central meteorological office, from which information on the weather covering most of the coastal region is disseminated daily The National Observatory and the observatory of the college at Belen report on conditions in Cuba The Government of Mexico provides weather information from Mexico City The Central Meteorological Office of Chile, the Astronomical Observatory of Ecuador, the Central Meteorological Office in El Salvador, the meteorological station at Santo Domingo in the Dominican Republic, and the Gagigal Observatory in Venezuela are other agencies which would be helpful Some operating companies are providing radio stations which disseminate weather information for aircraft Agents of the regular operating companies probably would assist individual fliers whenever possible in giving them information about stores of fuel, oil, and spare parts and weather data, etc

Before flying to or through Latin American countries one should make application through the Department of State, Washington, D C., which will request permission from the government authorities in the countries over which the flight is to be made If all the documents regarding the qualifications of the personnel and the airworthiness of the plane, required in the United States, are carried, and if efforts are made to comply with the existing regulations in each country, it is not believed that any difficulty will be encountered Several Latin American countries have detailed regulations, but they have not proved to be burdensome to those willing to conduct their flights as they would at home Customs formalties are not troublesome to those who will inquire of American consular offices and seek to meet all requirements.

There are several modern and large cities in the countries south of the United States, and living expenses generally are high Differences in languages and customs of the people should be borne in mind. Airports, travel facilities, and other conditions encountered will not be exactly as at home

The available information on landing fields and airports listed according to cities and countries is compiled from every known reliable source of information and is believed to be accurate

ARGENTINA

The climate of Argentina is moderate, with variations, and healthful. Summer comes in December, January, and February In the far north it is warm, while in the far south the temperature never goes above 48° F. The central coast region has an abundant rainfall, and an average temperature of 63°. Buenos Aires has sea breezes at night and from the west by day during the summer. Gales are frequent throughout the year. The central region has abrupt and frequent changes. The summer is hot and wet. Frosts occur in the dry winters. The Andes Mountains prevent rain in parts of the south. The terrain of Argentina approaches the ideal for flying, since large parts of the country are level.

Argentina, like most other countries south of the United States, has great natural resources, and it is a rapidly developing country. The government and the people are favorably interested in the development of commercial aviation.

Bahia Blanca, Buenos Aires Province.

This field, which is 3,280 by 4,264 feet in area, is located 2½ miles northwest of the city of Bahia Blanca and 397 miles southwest from Buenos Aires. The latitude is 38° 42′ south and the longitude 62° 17′ west and the altitude 63 feet. The airport is owned by the Bahia Blanca Aero Club. The surface is sandy, with natural drainage, and level. There is a standard 100-foot white circle and a wind cone. The surrounding country is level and there are no obstructions. Hangars (corrugated steel) for 12 small planes, small repair shops, and supplies of fuel, water, and oil are available. Telegraph, telephone, and radio services are available. There are no fogs except in winter. The temperature averages 59° F. and does not go below freezing or over 104° F. A training school is operated, and the airport is open to all planes.

Buenos Aires, Buenos Aires Province—New Port Airport

A new field 1,500 by 2,130 feet in size has been prepared on reclaimed land between the city and the Plata River in the New Port section, by the National Government. The spot is at 30° 36′ south by 58° 22′ west at about sea level. The ground is level, but there are no markings. It lies between a railway terminal and the port of Buenos Aires. Telegraph wires and fences are being removed. There are no hangars, fuel supplies, nor repair facilities, since the field is used only for handling passengers, mail, and goods. Communication facilities are at hand. Fogs occur only in winter and not after 9 a. m.

Castelar, Buenos Aires Province

This airport of the Centro de Aviacion Civil lies in the town of Castelar, 15 miles west of Buenos Aires, and measures 1,320 by 1,650 feet. The surface is level and marked by a standard 100-foot white circle and wind cone. A railroad lies to the south. The surrounding area is open and level. Fogs occur only in winter and before 9 a. m. There is a hangar corrugated-iron covering, 65 by 130 feet, and supplies of fuel, oil, and water are to be found. There are good communication and local transportation services. A small workshop is in operation. Club flying and a training school are carried on and the field is open to all planes.

Concordia, Entre Rios Province

The Aero Club Concordia owns a field 2,624 by 2,952 feet, 3¾ miles north of Concordia. The surface is not completely conditioned. There is one hangar.

Cordoba, Cordoba Province.

The Cordoba Aero Club has a field at 31° 25′ south by 64° 11′ west, 2½ miles from the railway station at Cordoba The sloping field measures 1,305 by 1,650 feet and has a standard 100-foot circle and wind cone and is without obstructions The surrounding country is rolling The temperature seldom goes below freezing, rises to 109° F, and averages 64° F Fogs are rare and occur only in winter There is a hangar for six small planes, together with communication and highway transportation facilities, but there is no repair shop Fuel, oil, and water are available

Fisherton, Sante Fe Province

The Rosario Aero Club owns an airport measuring 1,950 by 2,295 feet at 33° 0′ south, 50° 30′ west, at Fisherton, 3 miles east of the city of Rosario There is a 100-foot white circle on the level field which is further marked by a wind cone There are no obstructions, and the country is a flat agricultural area There are two hangars (corrugated iron) for six planes each, supplies of fuel, oil, and water, communication and highway transportation facilities, and a repair shop The airport is used for club flying and training and is open to all planes

Junin, Buenos Aires Province

The Junin Aero Club has an airport 2½ miles east of Junin The field measures 1,300 by 2,300 feet There is a hangar

Los Tamarindos, Mendoza Province

The airport of the Mendoza Aero Club is at 32° 53′ south, 68° 45′ west, at Los Tamarindos, 2½ miles north of Mendoza The level field measures 1 968 by 1,968 feet and lies 2,800 feet above sea level It is marked by a 100-foot white circle and a wind cone and is without obstructions The surrounding area is flat, devoted to grape growing The temperature is variable with extreme heat and cold in summer and winter, respectively Rainfall averages 8 inches a year Fogs are rare Winds are variable There are two 6-plane hangars, supplies of water, fuel, and oil, repair shops, and communication and transportation facilities The airport is used for commercial purposes, club flying, and training

Mar del Plata, Buenos Aires Province.

This field, owned by the Government, lies at 38° 2′ south by 57° 39′ west, 50 feet above sea level, 3 miles west of Mar del Plata on the coast line and 185 miles southeast of Buenos Aires The L-shaped, level field adjoins a race track There are no markings nor obstructions The land near by is level The temperature varies between freezing and 104° F and averages 59° F Fogs occur in winter. There are strong south, southeast, and northwest winds There are no hangars nor repair shop, but fuel, oil, water, and communication and transportation facilities are available The field is used for regular air services

Marquesada, San Juan Province.

The Marquesada Aero Club has a partially completed field 2,296 by 1,312 feet, with one hangar

Palomar, Buenos Aires Province—El Palomar

This military field lies at 34° 40′ south by 58° 35′ west, 76 feet above sea level, at Palomar, 17 miles northwest of Buenos Aires

It measures 6,186 feet east and west by 4,923 feet north and south and is slightly rolling A standard 100-foot white circle, a wind cone, and a luminous T mark the field, which has a railroad and telephone lines to the north The temperature seldom reaches freezing and goes up to 105° F, averaging 60° F Fogs occur occasionally in winter and never after 9 a m There are 10 concrete hangars Six measure 82 by 98 feet and four 98 by 164 feet. Excellent repair work is done at the concrete, well-equipped workshops Fuel, oil, water, military quarters and mess, and communication facilities are available The field is open to civil planes upon request before a visit

Presidente Rivadavia, Buenos Aires Province

The Argentine Aero Club has rented this field from the Government The field measures 2,625 by 3,282 feet and lies 72 feet above sea level at Presidente Rivadavia, 1¼ miles southwest of Moron and 13 miles from Buenos Aires The level field has a 100-foot white circle and a wind cone and no obstructions Temperature conditions are like those given for other Argentine airports There are two hangars (corrugated iron), one 63 by 47 feet, belonging to the club, and the other 63 by 63 feet owned by the Government There is a shop, and some equipment is stocked Gasoline, oil, and water and communication and transportation services are available The field is available to all planes and is used for club and training purposes

Puerto Belgrano, Buenos Aires Province

This seaplane and landplane base of the Argentine Navy lies at 38° 53′ south and 62° 6′ west at Puerto Belgrano The field is level, measures 2,300 by 2,600 feet, and is marked by the standard 100-foot white circle and wind cone Neon lights are expected to be installed Obstructions are To the north, eucalyptus trees 32 feet high, to the east, telephone line and eucalyptus trees, to the south, telephone lines, trees, and buildings 32 feet high and chimneys 130 feet high, to the west, eucalyptus trees, buildings and antennae of radio station, and to the northwest buildings 100 feet high Near by are forests, three petroleum tanks, and a port The average temperature is 59° F Variations are between freezing and 104° F Northwest winds of average force blow continuously Fogs are rare and occur only in winter Two 7-plane hangars (corrugated iron), fuel, oil, and water, complete repair shops, adequate hotel accommodations, and communication and transportation facilities are available

Rafaela, Santa Fe Province

This field, located 3 miles east of Rafaela, 315 miles northwest of Buenos Aires, measures 1,200 by 2,300 feet and has one hangar.

Resistenoia, Chaco Territory

Located one-quarter mile southwest of Resistenoia, this field measures 1,650 by 1,950 feet There is one hangar The Resistencia Aero Club is owner

Saenz Pena, Chaco Territory.

This field of the Saenz Pena Aero Club lies one-fourth mile east of the city and measures 1,650 by 1,950 feet There is a hangar.

Salta, Salta Province.

This field, 1,320 by 3,000 feet, with one hangar, lies north of the city and is owned by the Salta Aero Club

San Fernando, Buenos Aires Province

Lying 19 feet above sea level at 34° 26′ south and 58° 30′ west, one-half mile south of San Fernando and 15 miles southwest of Buenos Aires, this field measures 1,260 by 1,650 feet It is marked by a 100-foot white circle and wind cone There are no obstacles, and the country near by is flat The level surface is sodded. Weather conditions are like those described for other Argentine landing fields. There is a corrugated-iron hangar 122 by 62 feet Fuel. oil, water, a small repair shop, and communication and transportation facilities are available The field is used by privately owned planes

General Pacheco Field—Owned by the French company Aeropostale this airport is located 3¼ miles northwest of San Fernando, 18 miles from Buenos Aires is level, measures 4,275 by 4,950 feet, and marked by a 100-foot white circle and wind cone Lighting equipment is installed A radio antenna stands northeast of the airport, which is surrounded by level country Two hangars of corrugated iron measure 98 5 feet by 131 feet each Fuel, oil. and water, well-equipped shops, and good communication and transportation facilities are available The company's cars carry passengers between the airport and Buenos Aires.

Santiago del Estero, Santiago del Estero Province

This 1,968 by 2,300 foot field, owned by the Santiago del Estero Aero Club. lies at 27° 43′ south and 64° 23′ west, 2 miles southwest of the city of Santiago del Estero The clay surface is level A standard 100-foot white circle and a wind cone mark the unobstructed field The temperature never goes as low as freezing, rises to 110° F, and averages 65° F There is little rainfall, and fogs are rare Hot. northeast winds blow in September and October A galvanized-iron hangar for 12 planes was constructed recently Two other hangars for five planes each are placed by the central building The ground floor of the central building contains a mechanics' repair shop, sleeping quarters for transient pilots, dining room, first-aid room, an infirmary, library, etc The second floor has meteorological and aerial-photography offices. Fuel, oil, and water and transportation and communication facilities are available As at most other Argentine airports and landing fields, these consist of telegraph, telephone, and radio facilities and near-by railroad and highway. This field is used for club, training, and commercial purposes

Tucuman, Tucuman Province.

This field of the Tucuman Aero Club lies 26° 4′ south and 66° 2′ west. measures 1,312 by 2,296 feet, is level, and is marked by a 100-foot circle and wind cone There are three runways on the field, which is surrounded by a racetrack Fogs are rare; rains are abundant in spring and summer. Two corrugated-iron hangars, fuel, oil, and water, and good communication and transportation facilities are available. There are no repair facilities The field is used for instruction, club, and commercial flying.

Veronica, Buenos Aires Province—Punta Indio Station.

Measuring 7,221 by 5.250 feet, this field of the Argentine navy is located at 35° 28′ south and 57° 20′ west, 5 miles north-northeast of Veronica and 10 feet above sea level The almost level field is marked by a 100-foot circle and wind cone. Neon lights are planned The surrounding land is level, but radio towers 98 to 130 feet high are near the east side Six 9-plane corrugated-iron hangars, adequate shop facilities, fuel, oil, water, adequate hotel accommodations, and communication and transportation facilities are available

BOLIVIA

The chief physical feature of Bolivia is the vast central plateau, over 500 miles in length and at an average altitude of 12.000 feet The plateau lies between two great chains of the Andes Mountains which traverse the country from north to south Three peaks reach over 21.000 feet In the north the table-lands slope toward the Yungas River, and in the east there is a precipitous slope to the low "hot lands There are over 5 000 miles of navigable rivers The rainy season extends from December to May and the dry season from June to November Temperatures vary among the hot, temperate, and cold regions The prevalence of thick clouds over the broken country bordering the eastern edge of the high plateau is extremely dangerous for flyers

The Government is especially attentive to the development of commercial aviation

There are 17 Government landing fields. as follows La Paz, Chua, Apolo. Tipuani. Oruro. Uyuni, Potosi. Sucre, Villazon. Tarija. Villa Montes, Charagua. Yacuiba. Saavedra, Concepcion. San Ignacio, and San Miguel

Commercial fields, numbering 18. are located as follows Cochabamba, Mataraini, Mizque, Aiquile. Omorque, Salpina, Totora. Pulguina, Santa Cruz. Puerto Suarez. El Palo, Vallegrande, Valle Abajo. Jorochito, Trinidad, Todos Santos. and Santa Ana

The Alto military airport of La Paz is at an elevation of 13 500 feet and has a large flat field The terrain is very rocky and makes landing dangerous

BRAZIL

Brazil, the largest republic in South America, is larger than the United States, England. Ireland. Scotland. Wales. the Netherlands. Portugal, Switzerland, and Belgium combined There are about nine people per square mile and the coast line is 4 00 miles Two-thirds of the people live on the cool eastern plateau between Pernambuco and Rio Grande do Sul

The Amazon River Valley is a tropical area in which there are over 30,000 miles of navigable waterways The northeastern section of the country is similar to part of our Cotton Belt The Matto Grosso section is like our midwestern cattle-raising districts The climate is diversified, and in the more thickly populated part of the south it is agreeable Brazil is mostly within the Torrid Zone. but considerable areas have climate much modified by bodies of water, high table-lands and mountains As in most Latin American countries, winter is the wet season and summer the dry—that is, with but moderate rainfall The seasons are the reverse of those in the United States The precipitation is heavy along the coast and lessens progressively westward There are fogs along the precipitous slope from the coastal plane to the higher interior tablelands The temperature is high along the north coast, but farther south it is pleasant

Brazil is actively developing air transportation Competition among transportation companies endeavoring to get a foothold in what promises to be a profitable field, activities of both naval and military missions, continued advertisement on the part of the press, and a Government sensitive to the pulse of economic progress and needs have given Brazil an auspicious start in aeronautics The urge for commercial aviation has been hastened and already appreciable results are shown

The existing fields and airports are mainly scattered along the coast

Bahia, State of Bahia

Santo Amaro Field—This field is located north of the city at 13° 1′ south and 38° 28′ west, slightly above sea level It measures 3.280 to 1.968 feet and is usaully preferred to the Cammassarie Field

Cammassarie Field—Cammassarie Field is owned and operated by the Aeropostale company and is located at 13° 1′ south and 38° 28′ west at sea level The field measures 2,624 by 1.968 feet, and is equipped with hangar, wireless station, and shops This field, however, is considered unsatisfactory, largely because of the rough terrain

Belmonte, State of Bahia

The Compagnie Générale Aeropostale has constructed an emergency field at Belmonte, a small port 180 miles south of Bahia; an airport near the city of Aracaju has been authorized for the use of this company

In 1928, the Bahia State Senate authorized the State Government to build an airport at Bahia This is understood to be the municipal airport.

Bello Horizonte, State of Minas Geraes

The landing area in the State fair grounds is reported as being fairly smooth; the long axis is approximately 900 feet, the short axis less than 200 feet. A hangar, with dimensions 46 by 36 feet, has been built There are some obstructions in the nature of telephone poles and fences in the vicinity

Campos, State of Rio de Janeiro.

An area on the outskirts of the city of Campos is suitable for landings This is a small field, and little work other than that necessary in the way of leveling, has been done. This area was prepared in order to accommodate the planes of the Empreza Transportes Aerias. This local company initiated air services some months ago between Rio de Janeiro and Campos, and Rio and Sao Paulo. These services are suspended.

Caravellas, State of Bahia.

This is a field for land planes near the town of Caravellas north of Victoria. It was constructed by the Aeropostale company. The long axis of this field is 3,872 feet and the short axis approximately 1,968 feet. The prevailing winds are from northeast to southwest. The field is equipped with hangars and other necessary facilities. The Condor Syndicate is building a port for seaplanes in the harbor.

Cannavieiras, State of Bahia

The Aeropostale company maintains a field at Cannavieiras on the coast, at 15° 45′ south and 38° 20′ west, at sea level. The field is described as being 0.6 mile square and is used at present as an emergency landing field.

Florianopolis, State of Santa Catharina

The Compagnie Générale Aeropostale owns and maintains a landing field on the island adjacent the city of Florianopolis, which is connected to the mainland by bridge. The location is given as latitude 27° 36′ south and longitude 48° 30′ west at sea level. The field is at the south end of the island and measures 2,788 feet by 2,296 feet. The surface is rough and uneven. Hangars, shops, equipment, and wireless facilities are available.

The Condor Syndicate maintains a seaplane base at Florianopolis as a port of call. A small supply of equipment and sundry facilities is available.

Ilheios, State of Bahia

Ilheios is at 14° 48′ 33″ south by 39° 1′ 20″ west at sea level. The Aeropostale line operates a field there measuring 3,280 by 1,640 feet. The field is being developed and, when completed, will be good.

The Condor Syndicate is building a seaplane base which will be completed shortly.

Jaguarao, State of Rio Grande do Sul

The Aeropostale company owns and operates a landing field located at Jaguarao on the northern margin of the Jaguarao River, which forms the international boundary between Brazil and Uruguay. The location is given as latitude 32° 45′ south by 53° west, slightly above sea level. The field measures 2,624 feet by 1,968 feet, is slightly inclined, and is in good condition. It is used, however, as an emergency landing field.

Laguna, State of Santa Catharina

Sufficient docking space for seaplanes is provided at Laguna.

Maceio, State of Alagoas

The airport at Maceio is owned by the Compagnie Générale Aeropostale. It is located about 7 miles west of the town at 450 feet above sea level. The exact location of the field is 9° 39′ south by 35° 42′ west. The field forms a square 2,624 feet on each side. It has a flat, grassy surface and is well drained. The officials of the company using the field daily claim that it is in good condition. It has one corrugated-iron hanger, and two or three mechanics are on hand regularly, so ordinary repairs can be made. Gasoline and oil are suplied from the town. As in the case of the other Aeropostale fields which are in regular use along the Brazilian coast, it is equipped with electric lights and searchlights.

Marahu, State of Bahia

This landing field is located 14 miles up the Marahu River at 14° 20′ south and 38° 20′ west The field measures 2,952 feet by 2,296 feet The surface is good

Natal, State of Rio Grande do Norte.

The field at Natal is called the Campo de Aviacao and is owned by the Compagnie Générale Aeropostale It is situated about 15 miles southwest of Natal at Parnamirim, 5° 54′ south and 35° 14′ west The field is 3,280 feet square and is flat and sandy Hangar and radio facilities are available It is reached by railway or motor.

The Aero Club at Natal also has a small field alongside its building not marked and not illuminated at night

State of Para.

There are no regular established landing fields north of Natal, the northern terminus of the Aeropostale line There are numerous stretches of beach between Natal and Para where emergency landings could be made, but owing to the scarcity of towns in that district, it would be practically impossible to make repairs or secure fuel readily, unless the landing were made near one of the few towns in that section. No airports of any kind exist in the Amazon district, nor along the coast from Para to Natal, but, owing to the vast network of streams, this territory is considered to be ideally adapted to use by seaplanes

Paranagua, State of Parana—Condor base.

In the port of Paranagua, the Condon Syndicate has built a pier at which its planes land The right to use this location was ceded to the syndicate by the municipal government of Paranagua A project of the same government to build a land field near Paranagua has not been carried out

Pelotas, State of Rio Grande do Sul

A field 2,624 by 2,624 feet square is equipped with one hangar, constructed of metal, 86 by 98 feet, with a housing capacity for 6 planes There are also warehouse, machine shop office, pilots' rest rooms restaurant, quarters for personnel, wireless station, and modern lighting system. The wireless transmission towers are 100 feet high The field is connected with the city by telephone The Condor company also maintains facilities at Pelotas for seaplane landings.

Porto Alegre, State of Amazonas.

A large airport constructed on the Ilha Grande dos Marinheiros, opposite Porto Alegre, has recently been put into operation The equipment consists of machine shops, fuel deposits, houses for pilots, a large hangar, and a landing dock

Porto Alegre, State of Amazonas—Campo Gravatahy

This is a military field located about 8 miles from Porto Alegre. There are accommodations for 6 planes and facilities for making minor repairs It is used as a landing field by the Latecoere company. The field is reported to be in excellent condition

Rio de Janeiro, State of Rio de Janeiro.

The Compagnie Générale Aeropostale operates a landing field at Jacarepagua, a suburb, about 9 5 miles west of Rio de Janeiro and 5 kilometers inland from the coast. The location is given as 22° 40′ south by 43° 20′ west at sea level. The field is triangular in shape, roughly 2,624 feet by 2,296 feet. The land is low, and parts of the field are frequently under water, but the surface is usually solid and affords good landing. Wireless, hangars, shops, and supplies are reported available. The field is connected with the city by means of an excellent highway.

Campo dos Affonos.—This field is located at 22° 38′ south and 43° 25′ west. It is a military station situated 12 miles west of the city of Rio de Janeiro and south of the railroad station of Marechal Hermes, 51 feet above sea level. Is is connected with the capital by the Central Railroad of Brazil and by the Rio-Sao Paulo highway. Workshops, hangars, garage, refueling facilities, meteorological station, air pump, wireless station, and other modern facilities are to be found on this field. The contour of the field is irregular, the long axis being 5,600 feet and the short axis 2,800 feet. There are five hangars housing some 60 planes.

Campo de Galeao.—This field is located at 22° 48′ south and 45° 13′ west in the southwestern part of Governors Island in Guanabara Bay, facing Rio de Janeiro and northwest of that city. This field is for the exclusive use of the naval air service of the Federal Government, specific permission must be secured for commercial planes to use it. The field is small and is equipped with workshops, hangars, refueling facilities, air pumps, meteorological station, and two beacons are used for lighting the field for night landings. Transportation to the city is by launch. It is estimated that the five hangars provide storage space for about 55 planes. The facilities of this base frequently have been placed at the disposal of international flyers.

Campo de Manguinhos.—This is a small field about 30 minutes' ride by automobile from the center of Rio de Janeiro. The length of this field is approximately 1,300 feet, its width being about 500 feet. The only equipment is a make-shift hangar providing cover for about six small planes. This field is used by several private plane owners.

Owing to the small size of this field and to the fact that it ends on the shore of the bay it would scarcely serve as a permanent field for a commercial airline, as considerable skill is required to land the larger types of planes.

Campo de Santa Cruz.—This is an emergency field only, located several miles from Rio de Janeiro on the Santa Cruz branch of the Central Railway of Brazil. It has been used to some extent by private flyers, but owing to its distance from the city, it has been practically abandoned. In dry weather it offers rather good landing space, but because of the marshy character of the land, it can not be recommended for use in rainy weather.

Ilha das Enxadas.—This island has been partly leveled off. It may be considered, for all practical purposes, as being located in the city of Rio de Janeiro. It is the location of the Naval Academy, and a slip has been built for docking the navy's seaplanes. However, these planes do not ordinarily make use of this location, their regular base being the Campo do Galeao. On the Ilha das Enxadas there is a minimum of available space for a landing field, the navy's workshop and schools occupying the greater part of the space The Condor Syndicate utilizes the facilities at this place

Rio Grande do Sul, State of Rio Grande do Sul

Here facilities have been provided for seaplane landing by the Condor Syndicate

Recife, State of Pernambuco

This Ibura landing field is owned by the State of Pernambuco and operated by the Compagnie Générale Aeropostale It lies about 6 miles southwest of the town at sea level, latitude 8° 4′ south, longitude 34° 53′ west, and may be reached by dirt road The field is rectangular in shape, 2 600 feet by 1 300 feet, the surface being of sand and coarse grass, flat and without drainage Temporary runways are in use Only simple repairs can be made There are one or two workmen at the hangar Gasoline and oil must be sent out to the field Permission for lighting the field must first be secured from the Rio office of the company The field is easily distinguished by two radio masts on the eastern side and is supplied with a wind-direction indicator The upper portion of the Recife harbor is favorably suited for a seaplane base, its situation and depth of water being such as not to interfere with ship movements within the harbor

Santa Maria, State of Rio Grande do Sul

There are three hangars, which provide for 20 planes of average size The field is practically abandoned

Santos, State of Sao Paulo.

The Brazilian Government maintains a seaplane base at 23° 55′ south by 46° 25′ west at sea level The beach is wide and hard The development of this base is incomplete, but there is a large administration building, a steel hangar, and a seawall 110 feet long.

The Compagnie Générale Aeropostale maintains a field located at 23° 55′ south and 46° 25′ west at sea level The field is long and narrow, measuring 2,400 feet by 656 feet, and at right angles to the beach The surface is smooth, facilitating easy landings The prevailing wind is from the north and northeast It is claimed to have shops, hangars, and necessary supplies An unusual amount of fog is said to render flying difficult

Condor Airport—Near the city of Santos, on the waters of the outer bay near Ponta da Praia, Condor Syndicate has constructed a small slip where its seaplanes load and unload passengers and mail Practically no equipment for making repairs, etc, is to be found there.

Sao Paulo, State of Sao Paulo.

Campo de Marte—This field maintained by the State government for the exclusive use of the planes of the State militia or "Forca Publica." The field is located a short distance from the city and measures approximately 2,296 by 984 feet It is unlighted and has only two wooden hangars 53 by 66 feet each

New municipal airport.—A large field measuring about 3 by 1 8 by 1.5 miles is planned for a municipal airport, and it will be used jointly by military, civil, and commercial planes. The field is admirably located on the outskirts of the city, not more than 15 minutes' ride by auto from the center of the city. The only work that has been done is that of clearing the ground of obstacles and a certain amount of grading. It is intended to build several hangars, some of which will be available to private flyers. It is planned to construct four runways in the shape of a square, each to be about 3.280 feet long. All buildings are to be in the center of the square. A runway in the direction of the prevailing winds—that is, from southeast to northwest—will be somewhat longer than the other runways.

Campo de Ypiranga.—This is a comparatively small private field. It measures approximately 1,312 by 656 feet and is unlighted and poorly marked. It is located a short distance from the city of Sao Paulo. Its only equipment is a wooden hangar covered with corrugated sheets, which is 52 by 65 feet in size.

Victoria, State of Espirito Santo.

A field located at 20° 10′ south and 40° 17′ west is owned by the Aeropostale company. The field is irregular in shape, forming a right-angle triangle, one side 2,952 feet long, and the other 2,624 feet long. The surface is well drained. Hangar and wireless facilities as well as shops and supplies are available.

The Condor Syndicate is constructing facilities in the harbor for seaplanes.

Other airports

The following airports, all of lesser importance, are available:

- State of Sao Paulo
  - Itapetininga, 2,300 by 1,300 feet, no equipment
  - Pirassuminga, 1,640 by 1,300 feet, no equipment
  - Sorocaba, 1,300 by 1,000 feet, no equipment
  - Campinas, 1,000 by 328 feet, no equipment
  - Bauru, no equipment
  - Avare, no equipment
  - Collina, 320 miles northwest of city of Sao Paulo, runways 1,300 feet
  - Lins, inaugurated April, 1928, no equipment
  - Ipaussu, inaugurated April, 1928, no equipment
  - Assis, inaugurated April, 1928, no equipment
  - Jaboticabal
- Acary, State of Para
- Caico, State of Parahyba
- Mossoro, State of Rio Grande do Norte
- Macua, State of Rio Grande do Norte
- Angicos, State of Piauhy
- Pureza, State of Maranhao
- Therezopolis, State of Rio de Janeiro
- Matta, State of Maranhao
- Aracaja, State of Sergipe

BRITISH GUIANA

The coast land of British Guina, 10 to 40 miles wide, are flat and swampy. The second belt is slightly higher and traversed by sand dunes and heavily timbered. The third or largest is much higher and in parts heavily forested. It has not been explored. The average rainfall is 85 inches a year. The temperature falls to 70° at night and reaches 89° at times. From May to July or August the precipitation is very heavy, and a second rainy season extends from November to February. The coolest months are December to March; the hottest are from August to October and are to be avoided.

There are no landing fields anywhere in the colony, and seaplanes only could be used

BRITISH HONDURAS

British Honduras may be divided into several areas, the lowlands, the pine ridges, the broken "cahoon" ridges, the hills (up to 1,000 feet), and the mountains reaching 4,000 feet The climate is subtropical with temperatures of 50° to 98° F The average rainfall is 81½ inches per year, but in places it is 150 inches It rains almost continuously during October, November, and December It is dry from the middle of February to the middle of May and wet the rest of the year

A temporary landing place has been prepared along the beach at Belize A ramp 20 feet wide and 180 feet out into 4 feet of water was constructed by an American company for its amphibian planes A site 10 miles west of Belize is under consideration

The island of Barbados has a healthful climate, the temperature averages about 63° F in winter and 75° to 85° F in summer There are cool northeast trade winds, and the rainfall varies from 50 to 70 inches a year The rainy season occurs from June to October and the hurricane season in August and September The island is divided into two parts by a deep valley On the northern part is Mount Hillaby, 1,104 feet

There are no aircraft landing facilities in Barbados, St Vincent, St Lucia, Dominica. Montserrat, Antigua, or St Kitts-Nevis In Barbados the race track could be used as a landing place, but the ground is tracked and rough A small level plot at Port of Spain could be used in an emergency Landings other than emergency are forbidden St Johns, Antigua, has six level areas which could be used At a place called Casada Gardens, on a good road 3 miles from the city, small planes may land at any time on the golf course and race track. The prevailing wind is about northeast No efforts are being made to construct landing fields for airplanes

At St Johns Harbor there is good space for seaplanes The winds are usually parallel with the long way of the inner harbor Black and orange colored buoys float 100 yards south of the customs jetty

The Castries Harbor lies in a northeast-southwest direction and is well sheltered The ramp of an American company is on the portion of shore known as La Toc Seaplanes leave this ramp into a wind The depth of water 400 feet from the ramp, at low tide is 5 feet Wheels on amphibians should be lowered well out in the harbor The bottom in this area is hard and firm

The seaplanes of an American company alight on the water at St. Lucia They are fueled from lighters in the harbors and not from shore

CHILE

The width of Chile varies between 65 and 250 miles and averages 87 miles The eastern boundary is along the crest of the high Andes, which are paralleled by a lower mountain chain near the coast The northern end of the country, from 18° to 27° south latitude, is a rainless, sterile, desert area The rough, high, mineral zone lies between 27° and 33° south The great central valley, 600 miles in length and watered by rivers and canals and only a third as high as the mineral zone, lies between 33° and 42° south The southern archipelago and island area has large areas suitable for sheep. The climate along the coast is in part similar to that in California There is no rain in the north but some in the mineral zone; heavy rains occur in the far south In the north the weather is hot and dry but cool at night Snowstorms are frequent in the high mountains where weather variations are frequent and great. The summer (our winter) is the dry season The weather is influenced by the Andes and the cold Humboldt Current The average temperature at Santiago is 56°, the highest in the north is 91° and the lowest in the south 17° F

Chile is one of the most progressive countries in the field of aeronautics, and notable progress is being made Some landing fields in use lack sufficient facilities and are used at some risk, but work is being done for their improvement and the adding of others Visiting flyers are permitted to land at any of these fields, but they must secure permission from the Ministry of War before landing at the principal military fields, located at El Bosque and Iquique

Antofagasta

The El Gallo field at Portezuelo, at 23° 45′ south and 70° 24′ west, is at an altitude of 1,330 feet and some 10 miles east of Antofagasta is being developed Telephone and telegraph services are available Lighting equipment is being installed A radio station is also being erected at this field to maintain direct communication with Iquique and Copiapo The size is 6,560 by 6,560 feet A standard 100-foot white circle readily identifies this field Gas and oil are available The surface is reported as soft and sandy There is one small hangar available, 66 by 66 by 13 feet

Arica

The El Morro landing field is the one formerly occupied by the army air unit which is now stationed at Iquique It is located behind the Morro promontory, about 4 miles southeast from the center of Arica The field is 18° 29′ south by 70° 20′ west, it an altitude above sea level of 305 feet The size of the field is 6,560 by 3,280 feet, with an area of 500 acres, in the shape of a rectangle The equipment consists of three wooden hangars, barracks, electric plant, etc Gasoline and lubricating oils are available The field is sandy and the immediate surrounding hills fairly low, and night landings are possible Three hangars, each 59 by 13 feet, are available It is reported that bids are to be requested shortly for the construction of modern metal hangars The boundaries of the field are to be marked with electric lights A standard white circle identifies this field

Colina.

Colina is located 15 5 miles north of Santiago at 33° 13′ south by 70° 41′ west and is 1,717 feet above sea level The field measures 3,280 by 5,900 feet with an area of 445 acres This field is owned and operated by the Aeropostale company

Copiapo.

The field at Copiapo, Campo de Marte, is located about 1 kilometer east of the town of the same name at 27° 13′ south by 70° 22′ west, at an elevation of 1,200 feet The field measures 2,624 by 1,640 feet, contains about 100 acres, and is rectangular It is equipped with one hangar having space enough for six or seven small commercial planes and a small service station for quick repairs and for the supply of fuel and oil. There is also telegraphic and telephonic communication with near-by towns

El Bosque.

This military field lies at 33° 27′ south by 70° 14′ west, 1,706 feet above sea level It is 8½ miles south of Santiago and has a runway 5,900 feet in length by 2,624 feet in width Prevailing winds are north and south At one end of the field there are army flying schools and the mechanical shops, and on one side are located the hangars for government machines and administrative buildings, etc Practically all of the army planes are kept on this main field. It is equipped with lighting marking the four sides of the runway, and installations are being made of a system for directly lighting the buildings The flood type of night illumination will not be used on this field It is reported that the facilities are sufficiently large for servicing any number of planes at one time, there being five hangars of concrete and steel construction and four frame hangars.

Iquique.

Los Condores, an Army landing field, is located on a flat plain about 7 miles from Iquique, beyond the coast range of mountains, at 20° 10′ south by 70° 7′ west, 1,148 feet above sea level. The field is soft natural sand, clear of rocks, measuring 3,280 by 3,280 feet. Its runway is approximately 3,280 by 2,624 feet It is equipped to handle numerous planes in the five hangars already constructed, each 66 by 98 by 13 feet in size It also has a machine shop and other necessary services, including barracks, officers' quarters, telegraph office, hospitals, and administration offices, although on a smaller scale than El Bosque There is no illumination for night flying It is reported that a radio station will be erected shortly. American aviation gasoline and oils are available Prevailing winds are from the southwest, and there is usually an abundance of mist over Iquique in the early morning from May to September. Recently, the Chilean Government has awarded to an American concern the contract for the erection of an additional modern steel hangar 100 by 330 feet with a door clearance of 110 feet in width by 27 feet in height A standard white circle identifies the field

Ovalle.

The Tequi airport is located 6 2 miles northeast of the city of Ovalle at 30° 8′ south by 71° 51′ west at an altitude of 820 feet The size of the field is 3,280 by 984 feet with an area of 30 hectares There is one small metal hangar, 66 by 66 by 13 feet Gasoline, oil, and water are available. Repair facilities are very limited Telegraphic and telephonic communications are to be had. There are no obstructions.

Other Government fields

Aside from these principal landing fields and airports, the Government has constructed other fields near Ovalle, Talca, and Rancagua. All of these fields use a uniform marking Considerable progress has been made in conditioning these fields in the last few years, although radio and other aids toward air navigation are not used.

Penuco.

This airport was opened August 3, 1928 The hangar is of sufficient size to house 5 large and 10 small planes Penuco is situated 468 miles from Santiago on the southern branch of the longitudinal railway and has a population of 34,363

Puerto Mount

The Chamiza airport is located 5 miles south by southeast of Puerto Mount at 41° 49′ south by 72° 40′ west at sea level The field measures 3,280 by 2,624 feet with an area of 198 acres

Quinteros.

The airport at Quinteros belongs to the navy and is used solely by seaplanes The port is equipped with modern facilities The location of this place is approximately 19 miles north of Valparaiso at 32° 46′ south by 71° 33′ west at sea level The landing field is very small, being only 984 by 1,640 feet with an area of 37 acres, the field being soft and sandy The entire Chilean naval air force is based there, and the only training schools for naval aviation are there The field has no night lighting, but has a day marking in the center, consisting of a white circle in which is inscribed the letter "T" A forest east of the field is indicated as an obstruction At the field there is one wooden hangar about 40 by 46 feet At the seaplane base there are three steel and concrete hangars, each about 131 by 164 feet Complete repair shops, an ample force of mechanics, gasoline, oil, and water are all available Telegraph, telephone, and naval radio stations are at the seaplane base

Climatic and meteorological conditions are practically the same as those at Valparaiso, average winter temperature being 7° C The wet season is from May to August, when considerable rainfall is to be expected Fog may be expected during the months of February and March during the early mornings, but it is usually dissipated by 10 a m Prevailing wind is from the westward

Temuco.

The Maquehua airport is located 3 7 miles east of the city of Temuco at 38° 45′ south by 72° 35′ west at 371 feet above sea level. The field is rectangular, 1,640 by 2,952 feet, with an area of 112 acres Landing is obstructed on the south by a forest, the average height of the trees being about 66 feet An excellent landmark for identifying the field is the red roof of the officers' club, a 1-story building at the east end of the field There are no lighting facilities There are three metal hangars 115 by 75 by 20 feet An additional hangar is being constructed A small workshop is located on the field

Proposed Santiago field.

The Government of Chile is giving serious consideration to the establishment of a commercial airport of major importance in the vicinity of Santiago, which would be equipped with hangars, machine shops, lighting equipment for night flying, and all other appurtenances of a modern airport This contemplated project has been made possible by the recent donation of a wealthy American citizen for the purpose of encouraging commercial aviation in Chile Presumably Los Cerillos airport, located 5 miles southwest of Santiago, is to be the major commercial flying field in that vicinity It is at 33° 26′ south by 70° 41′ west at an altitude of 1,706 feet. The field measures 5,576 by 3,280 feet and is rectangular

COLOMBIA

Colombia is a country of great extremes featured by three chains of mountains, northern extremities of the Andes, flanked by valleys and deep passes The Magdalena is most important among several rivers There are four main zones—first the two coastal areas, then the low foothills up to 3,000 feet and valleys, the low hills and the first ranges of mountains up to 6,000 feet (the coffee country), and finally the higher ranges and plateaus, over 6,000 feet high The climate varies greatly On the Caribbean coast it is dry and hot from December to May, and wet from June to December On the Pacific side it is tropical and rains nearly every day Both coasts are hot and damp In the second zone, January, February, March, July, August, and September are dry, the other months are wet Here the climate is semitropical and the average temperature 76° F The third zone is much like the second, except there is more rain It is ideal between 5,000 and 7,000 feet Above 7,000 feet the seasons also vary little, and the temperature varies between 40° and 60° F

Colombia has boasted of a regular air service since 1920 Most of the planes were seaplanes, and there was no great early need for facilities for landplanes

The airport at Bogota, for landplanes, is used by the government military service

Landings are effected by seaplanes at Barranquilla, Cartagena, Sautata, Buenaventura, Puerto Wilches, Nisva, La Gomez, Calamar, and other places The courses followed are along the Magdalena, Sinu, and the Cauca Rivers

The Barranquilla airport is located 1 mile from the center of the city on the bank of the Magdalena River The land is largely a reclaimed swamp. Equipment consists of a large, lighted hangar 98 by 131 feet to accommodate large seaplanes It is constructed entirely of metal and has an asbestos roof, a large machine shop of similar construction is located on the field; underground gasoline tank, proof against explosion and fire, as well as other modern facilities, may be found there

The Cartagena airplane base has recently been authorized, it is to be located in a suburb of the city called Isla de Manga and will be a triangular field

The airport used by an American company contains about 140 acres of level land about 7 miles south of Cartagena near Soledad. It contains two runways 295 by 2,950 and 295 by 3,600 feet and a wind-direction indicator

La Brisa airport at Ibaque has been given to the Scadta company by the town This landing field is available to the public

COSTA RICA

Costa Rica is traversed by a chain of mountains from northwest to southeast Some peaks reach 11,000 feet The rainy season extends from May to November, although June is fairly dry The temperature averages about 75° F along the coast and about 60° in the mountain regions

There are three fields developed sufficiently for use They are located at Port Limon, San Jose, and Puntarenas

Planes land on the beach at Cinequite, 1 mile from Port Limon The open sand beach is 30 yards wide, while coconut trees and shrubs occupy another 30-yard strip between the beach and a highway The municipality has decided to clear the trees over a 1,000-yard strip and prepare there a level 100-yard runway of gravel and clay This will make a 1,000 by 60 yard field with a 100-yard paved runway diagonally across the beach at one end, near a temporary hangar soon to be built Gasoline supplies are available A road parallel to the beach lies 60 yards from it for 5 miles south from Port Limon

Colonel Lindbergh landed on the Bay of Puntarenas Recent reports indicate that a refueling station has been established there, and plans are being made to develop a modern airport

La Sabana at San Jose is a 2-way field extending east and west. It is operated by the Government as an unrestricted commercial field The position is at 9° 56′ north by 84° west, at an altitude of 4,000 feet The land is rectangular, measuring some 4,000 feet by 600 feet, the surface is smooth and covered with grass There is approximately a 2 per cent grade to the field Drainage is good Radio towers and guy wires south of the field and trees at both the east and west ends are to be guarded against No markers are evident The field can be identified as the only open space near the city There are no provisions made for lighting The prevailing wind is north by east At the extreme western edge of the field there is a hangar 60 by 60 feet with a 12-foot overhead clearance There are no landing strips nor runways Afternoon flying is not advisable because of fog No modern facilities for the servicing of planes are available

CUBA

Cuba is traversed in several directions by mountain chains There are numerous rivers, valleys, and plateaus Pico Turquino in the Sierra Maestra range is the highest peak It reaches 8,320 feet Cuba is said to have the most healthful climate in the world The hotter or rainy season runs from the middle of May through October, but the mornings are bright and clear The average rainfall is 52 inches, the heaviest rain is in June and the lightest in March The nights are always cool and pleasant, and sea breezes temper the heat

Commercial aviation has made great progress in Cuba A plan to establish airports and airport facilities is in effect Considerable progress has been made, and results are gratifying

Alquizar, Habana Province.

The field is 1 kilometer south of Alquizar and measures 1,500 by 1,200 feet The general direction is north and south, with splendid approach

Bainoa, Habana Province.

The field is located 328 feet north of Bainoa. The short axis is 600 feet, north and south, while the long axis is 1,200 feet, east and west. There are telephone and telegraph lines west of the field.

Baracoa, Habana Province.

This field lies 0.6 mile southeast of the town with dimensions 1,500 by 1,500 feet. The approach is good from all directions.

Bayamo, Oriente Province.

This field lies 1.2 miles northeast of Bayamo. It is in the shape of a square and measures 2,000 by 2,000 feet. A highway and a telephone line are on the south of the field. Approach from all directions is good.

Camaguey, Camaguey Province.

A landing field is located 5.6 miles northeast of Camaguey at 21° 61′ north by 78° west, at sea level. It is close to the highway that goes from Camaguey to Ninas and covers approximately one-half square mile. The terrain is good, with natural drainage. The field is sufficient to take off and land with any kind of plane. There are four runways one-half mile long and one-fourth mile wide. There are no obstructions. The field is identified as being 2 kilometers north of a big distillery and close to the Ninas highway. No lighting facilities for hangars are reported. It is reported that there is no personnel for service and maintenance of planes, but this could be requested from the army post at Camaguey. Commercial gasoline and oil are available. Repair facilities are at Camaguey, but not at the field, communication by telephone is available. Meteorological service is obtained by cable.

Caraballo, Habana Province.

The field is 0.6 mile northeast of Caraballa and extends 1,640 feet from northeast to southwest and 820 feet east and west. The best approaches are from the north and east. The terrain is good.

Cienfuegos, Santa Clara Province.

The field is located northeast of the center of Cienfuegos and borders the Cienfuegos-Caonao Road. It is approximately 1,650 feet by 1,000 feet. Gasoline, oil, water, and telegraph and telephone services are available.

Cuatro Caminos, Habana Province.

The field is 0.6 mile west of Cuatro Caminos, and extends 1,400 feet north and south by 2,000 feet east and west. The best approach is from the west.

El Gabriel, Habana Province.

A landing field lies 328 feet northeast of El Gabriel and measures 4,710 by 2,325 feet. There are telephone lines to the south of the field. Approach is good in any direction.

Finca "Bella Union," Habana Province.

A landing field 5 miles from the town of Gabriel with long axis 990 feet east and west and short axis 765 feet north and south is available. The approach from all sides is good, as is the terrain. It is regarded as an emergency field only.

Finca "La Posta," Oriente Province.

The field is 9 miles southeast of Victoria de las Tunas and measures 2,000 feet north and south by 1,000 feet east and west A road and telephone line are west of the field The terrain is good

Finca San Jose, Habana Province.

The field lies 2 5 miles southeast of San Antonio de los Banos. It measures 2,548 feet north and south by 2,332 feet east and west The approach is good from all directions The terrain is good.

Guantanamo, Oriente Province.

This field lies northeast of Guantànamo and extend 1,320 feet in a north and south direction and 1,320 feet east and west. The best approach is from north to south

A field southeast of the town measures 1,320 feet by 924 feet The field is an automobile racetrack and is used only in an emergency

Guara, Habana Province.

The landing field is 0 6 mile west of Guara and extends 1,000 feet from north to south and 900 from east to west The approach is good from all directions There are telephone lines on the north side of the field.

Guines, Habana Province.

This field is 1 2 miles west of Guines and is 3,120 feet square Telephone lines are located south of the field There is a good approach from all directions The terrain is excellent

Guira de Melena, Habana Province.

This field is located 0 6 mile north of Guira de Melena The short axis is 1,066 feet north and south and the long axis 1,394 feet northeast and southwest There are telephone lines on the southeast side of the field Best landings are effected from this direction

Habana, Habana Province—Camp Columbia

This airport belongs to the Cuban army The position is 23° north and 82½° west, the altitude is sea level The surface is dry and flat, with a slight incline and natural drainage There are no obstructions The field is located 7 miles west of Morro Castle, measures 1,200 yards square and is equipped with five hangars, aviation-school buildings, shops, and facilities for gasoline, oil, a spare storage, and repairs The field is reached from the city by bus, autos, trolley cars, etc It is used for the planes of an American company

It has the standard 100-foot white circle, and the name appearing on the hangars is "CAMPAMENTO COLUMBIA" It is further identified by the hangars, and the wind-direction indicator The field is illuminated near the hangars, and reflectors light the field. There are no beacons An official is on the ground at all times to give service Permission must be obtained from the Chief of Aviation Corps to secure the use of a hangar, but no charge is prescribed. Other facilities at the airport are a restaurant, first-aid station, telephone, fire-fighting apparatus, and a telegraph office Prevailing winds are southeast by south in the morning, and east by northeast in the afternoon Fog is very rare The hurricane season is usually considered to include the months of September and October

Jaruco, Habana Province.

There is a field located east of Jaruco measuring 6,560 feet east and west and 1,200 feet north and south There is a good approach from all directions. The terrain is excellent

La Catalina, Habana Province.

The landing field is north of the town and measures 950 feet east and west and 450 feet north and south The terrain is excellent. A good approach can be effected from all directions

Las Vegas, Habana Province

The landing field is located northeast of the town. The long axis is southwest by northeast and measures 1,800 feet The short axis from north to south measures 1,200 feet There is a good approach from all directions The terrain is exceptionally good

Madruga, Habana Province.

This landing field lies 2 miles northwest of Madruga on a big plain Fliers are cautioned against low spots in the terrain The field is recommended for emergency landings only

Managua, Habana Province.

This field is 0 6 mile northeast of the town and is 900 feet east and west by 600 feet east to northwest The approach is good in all directions The terrain is excellent

Matanzas, Matanzas Province

Located 7 5 miles from Matanzas, along the Limonar Road is the Matanzas Airport The long axis is approximately a half mile and the short axis one-fourth mile There are facilities for supplying oil, fuel, etc Telegraph and long-distance telephone communications are available

Manati, Oriente Province.

This field is 0 6 mile east of the sugar mill "Manati" and is 2,000 feet north and south and 1,320 feet east and west There are a highway and a telephone line on the north side A good approach is possible from all directions

Manzanillo, Oriente Province.

This field lies 2 miles southeast of the town and measures 4.000 feet north and south and 5,040 feet east and west A highway and a telephone line lie on the north side There is a good approach from all directions

Media Luna, Oriente Province

This field lies southeast of the sugar mill "Isabelle" and measures 800 feet north and south and 1,320 feet east and west There are telephone and telegraph lines south of the field The best approach is from west to east and north to south

Melena del Sur, Habana Province.

This field is 1 mile northeast of Melena del Sur and measures 900 feet north and south by 900 feet east and west There is a road on the south side of the field, and the approach is good from all directions The terrain is very good

Nueva Gerona, Isle of Pines

The field lies 1 mile east of Nueva Gerona and close to the model prison. The dimensions are 600 by 200 yards There are facilities for small repairs and for securing fuel and oil

Nueva Paz, Habana Province.

There is a field which measures 1,640 feet north and south by 1,640 feet east and west 0 6 mile southwest of Nueva Paz The terrain is good, and the best approach is from the west There is a second landing field located northwest of the town which measures 900 feet north and south by 700 feet east and west There is good approach and terrain

Niquero, Oriente Province.

The landing field is located two kilometers east of Niquero and measures 1,230 feet north and south by 2,000 feet east and west There is a good approach from all directions and a good surface.

Pinar del Rio, Pinar del Rio Province.

The field at Pinar del Rio is 12 miles south of the city along the Pinar del Rio-Colomo Beach road and measures 800 by 500 yards There are facilities for securing oil, gasoline, and repairs

Preston, Oriente Province.

The landing field is 1,300 feet east of the sugar mill " Preston " and measures 700 feet north and south by 1,000 feet east and west The best approach is from the east, and the terrain is good

Rio Seco, Habana Province.

This field is 0 6 mile southeast of the town and measures 900 feet north and south by 650 feet east and west Telephone lines on the north side of the field are to be guarded against The best approaches are from the east and south The terrain is good

Sabana, Oriente Province.

This field is south of Sabana and is 2,400 feet square There are a railway and telelphone lines east of the field Approach is good from all directions

San Antonio de los Banos, Habana Province

The landing field is 0 6 miles southwest of San Antonio de los Banos and measures 900 feet north and south by 1,200 feet east and west There is good approach from all directions and an excellent surface

San Felipe, Habana Province

This landing field was used by the Cuban army for training students of the first class and is in fair condition

San Jose de las Lajas, Habana Province.

This field is 0 6 mile southwest of San Jose de las Lajas and measures 900 feet north and south by 500 feet east and west The best approach is from north to south or vice versa. The terrain is good

San Luis, Oriente Province

A landing field is located 0 6 mile south of San Luis The short axis, northwest and southeast, measures 600 feet, and the long axis northeast to southwest, measures 1,000 feet The best approach is southwest to northeast The terrain is good

San Nicolas, Habana Province

There is a landing field 0 6 mile north of San Nicolas with good approach from all directions The terrain is reported excellent.

Santa Clara, Santa Clara Province.

The airport is located a half mile from Santa Clara It possesses a hangar, suitable illumination for night landing, small shop for necessary repairs, telegraph and telephone, military barracks, etc. Ample facilities for fuel, oil, repairs, and communication are available

Santiago de Cuba, Oriente Province.

A field lies one-half mile southeast of Santiago The long axis is 1,000 feet and the short axis 270 feet. There are facilities for oil, gasoline, water, small repairs, etc. Telephone and telegraph and good means of travel to and from the city are at hand

An American company's field, located between the Bacardi factory and the cemetery, is 2,000 feet north and south and 840 feet east and west. There is a runway north and south

Victoria de las Tunas, Oriente Province.

This field lies northeast of Victoria de las Tunas and measures 3,000 feet east-northeast and west-southwest by 2,500 feet north and south Railroad and telephone lines are located south of the field There is a road to the north A good approach can be had from all directions The surface is good.

INTERMEDIATE FIELDS

Fields of intermediate rating which can be used for emergency landings are located as follows.

Matanzas Province.

Matanzas, 4½ miles southeast on crossroads to Cidra and Cardenas; one runway 1,500 by 250 feet bounded on the south by San Juan River

Union de Reyes, 2 miles east, 2,000 by 1,200 feet, on road to Bolondron

Cardenas, directly south of city, on road to Lagunillas, runway of 1,200 by 250 feet north and south.

Jovellanos, 0 6 mile northwest on railroad to Matanzas, 1,200 by 1,500 feet

Pedro Betancourt, immediately south of village, 1,800 by 1,500 feet, contains low spots

Maximo Gomez, immediately south, beside cemetery, 1,200 by 1,800 feet.

Agramonte, immediately south, 1,800 by 1.500 feet; high-tension wires.

Marti, 0.6 mile west, 1,800 by 1,500 feet

Baro, immediately northwest, 1,800 by 1,600 feet; very good

Colon, immediately west of town, 1,800 by 1,500 feet, good save low spots in center

Calimete, immediately west, 1.025 by 635 feet

Pinar del Rio Province.

Consolacion, 0 6 mile east of city, 1,500 by 2,500 feet, flat and clean, palm trees near by

Paso Real, 1 mile northeast on good road, 3,000 by 3,000 feet; flat and clean; planted in pineapples, furrows make rough landing

Los Palacios, adjoining town on south, 2,000 by 1,500 feet, flat and clean.

San Cristobal, 0 6 mile south of town, 2,500 by 3,000 feet, dirt road to town

Candelaria, adjoining town to north, 1,500 by 1,500 feet, being leveled

Guanajay, 1 mile south, 2,100 by 1,800 feet; on dirt road

Artemisa, 1 mile northwest, triangle 2,500 by 3,000 feet, on highway, rough but can be used

ECUADOR

There are three regions in Ecuador—the low, hot coastal lands, partly covered with tropical vegetation and averaging 80 miles in width; the Andean highlands, with numerous very high peaks; and the forested plains stretching toward the Amazon A great plateau between the two chains of mountains varies from 7,500 to 9,000 feet in altitude The tropical climate is influenced by the altitudes and is pleasant in parts of the country The rainy season lasts from December to April, the dry, summer season from May to November The temperature along the coast ranges from 70° to 90° F

Owing in part to the unusual characteristics of the country and its inadequate transportation facilities, flying is increasing in Ecuador, as in neighboring countries.

Guayaquil

The only practical landing field at Guayaquil is the military field named "El Condor" This field is owned by the Government and operated by the army Its position is 2° 13′ south, 79° 52′ west, and the altitude above sea level is 11 feet The magnetic variation is 6° 13′ east It is 3½ miles northeast of the city of Guayaquil, across the river beyond the railroad shops at Duran, and near the Guayaquil-Quito Railroad and the river There is a detachment of 26 soldiers stationed there It is a partly leveled field that has been cleared of trees and rocks During a large part of the time from December to June the field is useless, as it is under water, and during the remaining months of the year it is not in excellent condition It is about 2,624 by 492 feet in size and the cleared section is a rectangle 2 296 by 328 feet There is a further extension, on which no improvements have been made and which at present is not available The field has never been surveyed The leveling is very poorly done, and the ground has not been filled in There is no gradient nor drainage, and the only runway is the partly cleared section It has a black clay surface soil

Planes should approach the field by following the Guayas River. When the city of Guayaquil has been reached, it can easily be indentified by its size and the Centenary Monument, a high stone shaft in the center of a large square Particular care should be taken to follow the course of the river so as to avoid the hills to the north of the city. The planes cross telegraph wires that are strung from the top of the hills north of the city to the other side of the river After passing these telegraph wires the town of Duran (Eloy Alfaro) may be seen on the right, opposite the juncture of the Daule and Babahoyo Rivers When opposite the town at the junction of the rivers, the plane turns to the right, thus avoiding the hills south of Duran Beyond the small town of Duran the field is situated near the railroad track and along the river and may be easily identified by the hangars, which are larger than any other buildings beyond the railroad shops at Duran

The only markings are a white circle about 3½ meters in diameter, prepared when a plane is expected, and a cement T about 2,296 feet from the hangers There is a circle in the center of the north side of the field that has been prepared for landings, but it is difficult to identify it from a plane There are no markings on the hangars, and there are no beacons or other lighting arrangements whatever Planes should not arrive at night

The most serious obstructions are the dangerous telegraph wires across the Guayas River These wires extend across the river along the route that a plane must follow and offer a dangerous obstruction to planes, as they start from a hill on the Guayaquil side that is 328 feet in height No plane should be flown in the northern (up-river) section of the city at an altitude of less than 410 feet

There are also hills 164 to 328 feet high south of the field, which can be avoided by continuing along the river The hills opposite these on the other side of the river north of the city of Guayaquil also do not offer any obstacle if planes follow the course of the river It should be noted that planes should not fly over the fort situated on these hills near the river

There are six army pilots being trained by an American aviator who are not permanently stationed at the field, but live in Guayaquil

There are two wooden hangars with 46-foot span for landplanes, and one hangar with 52½-foot span for seaplanes The hangar for seaplanes is connected with the river by a small runway These hangars are not equipped to shelter the planes properly, and the one for seaplanes is very rarely used There is a small machine shop with a little equipment, but near by are the railroad shops of the Guayaquil-Quito Railroad, which are somewhat better equipped There are also a small office for administrative purposes and a shed with first-aid equipment There are no rest rooms at the field or suitable quarters for flyers The supply of spare parts is negligible At the field there is a telephone, and near by, at Duran, there are the public and railroad telegraph and telephones There is a wind indicator on an iron mast 52½ feet in height There is no weather map, register for noting arrival of planes, or similar equipment

Duran is only about 10 minutes' walk from the field, and from there a ferry can be taken for Guayaquil The ferry leaves every half hour from 5 a m to 6 p m, and launches can easily be obtained at other times At Guayaquil there are hotels and restaurants, which are used by visiting flyers At Duran there are no suitable accommodations except in a few private homes and a small railroad hotel and restaurant

Part of the equipment and the government planes are moved to the interior town of Latacunga during the rainy season

Suitable fuel and oil for planes are not obtainable There is available about 100 barrels of domestic gasoline 70° B or better, and at least 10,000 gallons of standard motor oil Oil dealers are all in Guayaquil, to whom it is possible to telephone from the field or from the town of Duran

There is no charge for the use of the field, the machine shops, hangars, or the service of the personnel Permission, however, should be obtained through the consulate general and the jefe de zona (military commander of the district) Several days' notice should be given, so that the necessary formal permission can be obtained No landplanes should plan to visit Guayaquil during the rainy season

New field—The government has been planning to purchase land north of the city of Guayaquil, beyond the small hills, on the Hacienda Atarazana, for the purpose of building an internationl airport, but the land has not been purchased and the project has met with serious difficulties

Quito

There is no developed field at Quito, but preparations can be made for the landing of planes

Other fields

There are landing fields in the interior at Latacunga, Ambato, and Riobamba, but very few planes have landed on these fields They are neither leveled nor cleared, and they have no equipment, hangars, markings, or supplies of fuel Flyers should not consider using them without first landing at Guayaquil and there making the necessary arrangements Steps have been taken to establish landing fields along the coast at Salinas and Bahia de Caraquez

The seaplanes of a Pan American company and of the Scadta (Sociedad Colombia-Alemana de Transportes Aereos) use the river north of the telegraph lines and beyond the hills at Guayaquil They land near the golf club, from which there is bus and motor-boat service to the city Near Duran, a short distance from the landing field, is a sandy beach free from obstructions on which seaplanes may be hauled

Meteorological data

The prevailing winds are southeast in summer and northeast and north in winter, but they are variable There are no heavy winds or hurricanes and no fog The rainy season begins generally at the end of December and lasts until May or June During the winter the climate is very humid, and the ground not only exceedingly muddy but often completely inundated except in the center of the city of Guayaquil The temperature in the shade varies from 75° to 92° F and goes as high as 130° in the sun The precipitation is very heavy, but there are no statistics available

EL SALVADOR

There are two chains of mountains running north and south across El Salvador Several spurs cause numerous small valleys Some mountains are cultivated to their summits. The climate is tropical in the lowlands and temperate in the mountain regions The wet or winter season lasts from May to November and the summer from November to April Cool land breezes blow during December and January.

El Salvador, which has always been cut off from direct communication with the coast, especially feels the need of quick and direct communication with the rest of the world Much enthusiasm has been aroused concerning commercial aviation, including mail and passenger service between the important cities of the Republic, and practical results will undoubtedly follow

There is a landing field located about 12 miles from the city of San Salvador at a place called Ilo-Pango This field is at an altitude of 2,000 feet and slopes gently toward a precipitous deep ravine on the south side, making landing across the narrow part of the field extremely dangerous This gives the field practically a 2-way approach, the principal runway being ample for the operation of any type of plane and in the direction of the prevailing wind The location of the field is 89° 9′ west and 13° 42′ north. The standard 100-foot white circle with a 4-foot band identifies the field. A wind cone is placed on a hangar The hangars are of sheet iron, 40 by 50 feet, with clearance of 20 feet Gasoline and oil are to be obtained in the city near by Telephone and telegraph service is available

Another field, called Campo de Marte, at San Salvador, lies inside a 1-kilometer race track.

FRENCH GUIANA

The coast of this colony is a lowland rising to plains About 50 miles inland the highlands commence, and the interior is heavily forested. The area is broken by numerous rivers, ridges, and low moutains The climate is tropical, with excessive rainfall, which amounts to 130 inches a year at Cayenne The wet seasons are from May to August and November to February The remaining months are drier

There is no information available regarding airports or airport facilities in French Guiana

FRENCH WEST INDIES

Guadeloupe has a hot climate, with temperature ranging from 62° to 96° F The rainy season extends from July to November, the cool season from December to March, and the dry season from April to June The land is volcanic The eastern half of the country is flat; the western half is mountainous, with one peak reaching 4,900 feet

Martinique is a tropical but mountainous country The average annual precipitation amounts to 87 inches, with the heaviest in August and lightest in March The temperature along the coast falls to 75° during the trade-wind period from November to February.

Guadeloupe

There are no airports or facilities for landing aircraft in Guadeloupe There are no air-transportation connections of any kind there.

Martinique.

There are no airports or flying fields in Martinque Seaplanes are the only ones that could be safely used in this island. The Bay of Fort de France is very well protected and is calm throughout the year Seaplanes can safely land in this bay, but no permanent facilities have been provided for the anchoring of planes Recently two

American seaplanes have made emergency landings in the bay, and one of the anchorage buoys was used Seaplanes can land on any part of the Bay of Fort de France, but it is necessary to go to Anse a L'Ane, on the south side of the bay near Ramiers Island, to find a satisfactory beach upon which to drag a plane No stocks of aviation gasoline and oils are available It is necessary to arrange for fuel in advance There are no repair facilities The best meteorological data available are those supplied by the American authorities. The local observatory is unprepared to supply comprehensive and reliable reports.

GUATEMALA

Guatemala is traversed north and south by a chain of mountains with many spurs There are numerous high plateaus and small valleys Along the coastal plane at sea level the climate is tropical, hot and humid, with heavy rains About Guatemala City (altitude, 5,000 feet) it is springlike, and the annual rainfall amounts to 57 inches At Quezaltenango (7,000 feet) it is cold The rainy season lasts from May to October in the interior and through December along the coast The coldest months are December and January and the hottest April and May.

The Republic has made notable progress in aviation recently.

Coban.

The position of the field is 15° 38′ 25″ north by 90° 18′ 58″ west at an altitude of 4,330 feet above sea level

Escuintla

This is an emergency field owned by an American company located about 2 miles southeast of Escuintla, at an altitude of some 1,450 feet. The approximate position is 14° 17′ north by 90° 46′ west. The runway is slightly curved and is 1,500 feet long by 130 feet wide The direction of the runway is north and south, there is a fence at the south and some trees to the north, on either side there is high grass There is a wind sock at the field Aviation gasoline and oil, in small quantities, may be obtained at Escuintla

Flores.

The town is situated on an island, just off the shore of the south-central part of Lake Peten The field is located on the lake shore, almost directly south of Flores, at an approximate location of 16° 54′ 45″ north by 89° 53′ 15″ west at 800 feet The field is 1,300 feet east and west and 300 feet north and south The north end borders on the water, and there are trees on the south and west sides It is marked by a 50-foot white circle, and there is a hangar at the northwest edge of the field

Guatemala City.

La Aurora airport is the most important and best-equipped field in the country It is owned by the government and operated by the army. It is at 14° 34′ 28″ north by 90° 31′ 57″ west at 4,592 feet above sea level The field is 3 miles south of the center of Guatemala City and can be reached by automobile road The field measures 3,864 by 787 2 feet and is rectangular, running north and south The surface is of hard clay covered with considerable grass It is almost level, with a very low ridge extending from the northeast corner to the southwest corner, sloping gradually in opposite directions so as to afford excellent natural drainage The only obstruction is an old brick water aqueduct about 25 feet high running east and west crosswise to the field, 1,500 feet to the north A standard 100-foot circle identifies the field Other markings consist of a white point every 196 8 feet down the center of the field and a white square at each corner There is a wind-direction indicator on a hanger There is no lighting equipment There is at all times efficient personnel on hand for servicing planes Two hangers furnish ample accommodations for three medium planes Repair facilities are available Telegraph and telephone communication is available Gasoline and oil must be procured in the city and can be had at the field within a maximum of three hours on telephone order Ships planning to refuel should cable the American consulate general their needs at least 24 hours before arrival All arrangements can be made in this manner Prevailing winds are north and south, lengthwise of the field Visibility is always excellent Average annual rainfall is approximately 40 inches

Huehuetenango.

This field, located at Huehuetenango, is owned by the Government of Guatemala The position of the field is 15° 18′ 39″ north by 91° 27′ 23″ west The altitude is 6,199 feet above sea level The field is 1 9 miles west of the town The long axis of the field is 2,900 feet; the short, 420 feet The field is rectangular and has a natural hard surface Drainage is good There are no obstructions at or near the field There are no markings or lighting facilities Accommodations at the field are lacking There are no hangars nor repair facilities, and gasoline and oil are not available

Jalapa.

The position of the field is 14° 38′ 2″ north by 89° 28′ 57″ west at an altitude of 1,380 feet It is 1 kilometer east of Jalapa by gravel road The field itself is rectangular, 2,952 by 984 feet The surface is hard and level, and drainage is good There are no obstructions at or near the field Markings and identification of the field are entirely lacking There are no hangars, repair facilities, or other accomodations at the field, other than telephone and telegraph The nearest available supply of gasoline and oil is at Guatemala City (two days) Meteorological data are available

Jutiapa.

This is a Government field, at 14° 17′ 15″ north by 89° 53′ 45″ west at an altitude of about 1,500 feet The field is 2,500 by 800 feet, with the entire field available Runways are marked, and there are no obstructions Aviation gasoline and oil are not obtainable, but good-quality auto gasoline and oil are available.

La Libertad.

This field is owned by the Government Its position is 16° 47′ 33″ north by 90° 7′ 13″ west at an altitude of 170 meters It is located approximately 2 5 miles south of the town The field is 4,920 by 2,624 feet and it is rectangular It is level and hard during the dry season Drainage is good There are no obstructions near the field Markings are lacking. There are no lighting facilities nor air beacons Accommodations at the field are negligible Gasoline and oil are not available It is necessary to carry fuel from Guatemala City by airplane No data with regard to meteorological conditions are available

Mariscal, State of Chiapas, Mexico.

This field is directly across the river from Ayutla, Guatemala, and is owned and used by an American company in its regular service between Mexico and Guatemala Government officials at this port make the customs and passport inspection of air passengers The airport's position may be described as one-half mile north of Mariscal, 14° 41′ 15″ north by 92° 8′ 15″ west at sea level The size is reported as 3,900 by 325 feet, with the entire field available. It has a firm sand surface and is marked with a circle Pilots are requested to land through the circle There is a wind sock at the field, and aviation gasoline and oil are available

Puerto Barrios

Construction of this field is reported nearing completion Its approximate position is 15° 43′ 30″ north by 88° 36′ west at sea level The size of the field will be about 1,500 by 500 feet, with a firm surface, and runways marked Aviation gasoline and oil will be available The town of Puerto Barrios is the seaport for the railway, the airport is located east of the railway, a short distance inland from the port and in the vicinity of the wireless towers

Quezaltenango.

The field is owned by the Government and is located at 14° 49′ 44″ north by 91° 30′ 27″ west at an altitude of 7,808 feet The field is on the eastern edge of Quezaltenango The surface is reported to be hard, level, and with good drainage There are no obstructions near the field Standard marking and identification of the field, accommodations at the field, hangars, repair and lighting facilities, and telephone and telegraph are all lacking Gasoline and oil are not available except from Guatemala City by telegraph Delivery requires one day Meteorological data are not available It is reported that the field is 2,500 by 1,300 feet, all available, and that the two runways are marked with a cross

Retalhuleu.

This is a private field, leased by the Government It is located at 14° 32′ 15″ north by 91° 40′ west at an altitude of about 800 feet The field is at the northeast edge of the city of Retalhuleu and only a short distance east of the railroad The size is 2,500 by 500 feet, and the runway is north and south, marked by a 50-foot white circle There are no obstructions The construction of a hangar is contemplated Aviation gasoline and oil are available at the field. There is a wind sock

Salama.

The position of this field is 15° 6′ 30″ north by 90° 15′ 50″ west at an altitude of 920 meters It is 2 kilometers southeast of Salama and is 1,640 feet square The surface is hard and level and the drainage good The field is free from obstructions Markings are lacking There are no lighting facilities, beacons, or boundary lights Accommodations at the field are lacking Telegraph service is available There is no supply of gasoline or oil available Guatemala City is the source of supply. No meteorological data are available.

San Jose.

This is a private field, owned by Cooper & Drummond (salt works), with Louis Myers as caretaker It is about 2½ miles northeast of the port of San Jose and about 1 mile directly inland from the ocean, and is near a large salt works The approximate position is 13° 55′ 30″ north by 90° 47″ west at sea level The landing strip is about a half mile long and 325 feet wide, with a grass surface. It is marked with a 50-foot circle and the letter I, and there is a wind sock The direction of the runway is northeast and southeast. There are no obstructions

Santa Cruz.

The field is owned by the Government The position is 15° 1′ 18″ north by 91° 7′ 8″ west at an altitude of 6,626 feet The field is in the town of Santa Cruz The dimensions of the field are not given, but it is a small rectangular field, level, with hard surface and good drainage There are no obstructions near the field No markings are to be found There are no hangars, lighting, or repair facilities or improvements on the field other than telegraph Gasoline and oil are not available except by telegraph, and then it requires two or three days Data are not available with regard to meteorological conditions

Tiquisate.

The town of Tiquisate is located between the railway (southeast of Mazatenango) and the Pacific Ocean, about 8 miles south of the railroad and about 15 miles north of the ocean, at an approximate location of 14° 17′ 40″ north by 91° 21′ 30″ west It has a private emergency field, measuring 1,500 by 1,000 feet, with a grass surface The entire field affords landings It can be identified as being 1,500 feet north of a long office building The name of the town is painted on the roof of this building The field has a good approach, free of trees Gas and oil are not obtainable at the field

Zacapa.

This field has been dedicated by the municipality to the memory of Col Rodriguez Diaz, popular Guatemalan flyer who was killed in September, 1929, and has been named after him The position is 14° 58′ north by 89° 32′ 30″ west at an altitude of 1,200 feet The size is given as 3,200 by 800 feet, with a grass surface, and the entire field is available Runways are not marked There are a fence and some small buildings on the east side of the field; otherwise it is unobstructed The field is 1½ miles west of the town, and is practically adjacent to the branch of the railroad which leaves the main line and goes in a southerly direction to Salvador Within the near future a supply of aviation gasoline and oil at the field is contemplated

GENERAL INFORMATION

Cattle are allowed to graze in practically all of the smaller fields, and for this reason the field should be "dragged" once or twice before landing

In the rainy season pilots coming to Guatemala City from the direction of Mexico have sometimes found the pass (east of the volcano Agua, or the route of the railroad from Escuintla to Guatemala City) blocked with clouds, and have been forced to go back to the field at Escuintla, San Jose, or Retalhuleu It is possible for small planes to land on the beach along the Pacific coast, as there are several good stretches of adequate length

There is a plan contemplated to construct a field for civil aviation near Guatemala City, also in the southern part of the city Air-transport companies operating in Guatemala have at one time or another expressed a desire for a field of their own, and it is not unlikely that at least one of these companies will build a private commercial field.

HAITI

Haiti is a land of forested mountains and fertile valleys It has the highest mountain in the West Indies, Loma Tina, over 10,000 feet The average altitude of the Sierra del Cibao is 7,000 feet The average temperature at Port au Prince from April to October is 82° F ; for the remaining months 79° December, January, and February are dry Two wet seasons culminate in May and October

There are no public landing fields in the country A military field is maintained at Port au Prince, which, by special permission, is being used by an American company It is understood that this company plans an airport of its own At Cape Haitien military authorities operate a landing field.

Anse a Pitre.

This field is used as an emergency field and is owned by the Haitian Government It is located at 18° 3′ north by 71° 45′ west. The field lies at sea level It measures 1,200 by 300 feet and is oblong There are no markings, identifications, nor lighting facilities Accommodations are almost wholly lacking Repair facilities are not available

Cape Haitien.

The Marine flying field located at Cape Haitien is at 19° 47′ north and 72° 14′ west at sea level The field measures 2,700 by 750 feet and is oblong The surface is flat and sandy, with natural drainage The entire field is available for landing purposes There are no landing strips or runways Telephone wires east of the field are the only obstructions reported The standard 100-foot white circle with 4-foot band identifies the field No provisions have been made for lighting facilities Adequate personnel for servicing and maintenance are available No hangars are provided at this field Telephone and radio services may be had Prevailing winds during the summer months are northeast and during the winter northeast by east

Gonaives

This field is owned by the Haitian Government and is used for emergency purposes, being located at 19° 27′ 30″ north by 72° 41′ 30″ west at sea level The field measures 3,600 by 2,400 feet and is irregular in shape The surface is flat and sandy, with natural drainage The entire area is available for landing purposes No obstructions are reported. There are no particular identification marks to guide flyers or lighting facilities Personnel for servicing and maintenance are lacking No effort has been made to provide repair or communcation facilities

Hincha.

The landing field at Hincha is located at 19° 8′ north by 71° 59′ 30″ west and at an attitude 800 feet above sea level The field is south of the town and is triangular, 1,800 by 300 feet The surface is hard and level, with natural drainage There are no landing strips or runways A small house at the apex of the field at the northern end is the only obstruction There are no specific means for identifying this field No lighting facilities are reported. Telephone service is available

Jeremie.

The Jeremie landing field is located at 18° 38′ north by 74° 7′ west at 50 feet above sea level The field is located within the city limits on a bluff overlooking the ocean, at the western end of the town The field measures 900 by 300 feet, being hexagonal The surface is described as rough, with grass turf Tall trees on the western edge of the field are the only obstructions There are no standard identifications or markings to guide flyers, nor are there any lighting facilities installed Neither hangars nor personnel are available Repair facilities are lacking The field is equipped with a telephone Prevailing winds are from the northeast The field is too narrow to land other than in one direction, and the surface is very soft after a rain

La Gonave

The name of the La Gonave field is Anse a Galets It is owned by the Haitian Government and used as an emergency field The position is 18° 50′ north by 72° 31′ west at sea level The field measures 2,100 by 300 feet and is oblong Identifications, lighting facilities, accommodations for servicing and maintenance, and communication and signal equipment are lacking.

Mole St. Nicholas.

This field is used only as an emergency field and is located at 19° 51′ north by 73° 22′ west at sea level The field is located 3 miles north of Mole St Nicholas and is bounded on the north by the ocean and on the west by a small lagoon It measures 1,200 by 230 feet, and is rectangular The surface is hard, with a number of loose stones The drainage is natural The whole field is available for landing purposes Identification, lighting facilities, accommodations, personnel for servicing and maintenance, repair facilities, and communication and signal equipment are lacking

Port au Prince.

This field, known as Bowen Field, is located at 18° 37′ 30″ north by 72° 19′ west It is located 2 miles north from the center of Port au Prince It is bounded on the west by a public highway The field itself is practically covered with level green grass, it is used for a golf course The field measures 2,100 feet by 1,200 feet and is rectangular Drainage is natural, with the gradient about 1 per cent. There are no landing strips or runways The entire field is available for landing Telephone wires on the western edge of the field and two high radio towers about one-half mile southwest are the only obstructions The radio towers are painted yellow and black

There is a standard 100-foot white circle with 4-foot band, which easily identifies the field A wind-direction indicator is provided on the roof of the last hangar to the west

There are four small floodlights of 100 candlepower each There are no hangars available for storage An adequate guard for protection of property is maintained, both day and night Telephone and radio services are available

Port de Paix

This field might better be regarded as an emergency field, located at 19° 57′ 30″ north by 72° 48′ west, at sea level The field is one-half mile west of Port de Paix and measures 1,200 feet by 900 feet It is in the shape of an L The surface is rough and slopes toward the ocean High hills south of and buildings on the north side of the field are obstructions There are no identification marks nor lighting facilities Accommodations are almost wholly lacking

HONDURAS

Honduras is a mountainous country with several plateaus and valleys The climate along the coasts is torrid and in the interior temperate, though trade winds affect both Hurricanes are infrequent The average temperature at Tegucigalpa is 74° F The wet and dry seasons are not well marked On the Pacific side the wet season extends from May to November, and on the Atlantic coast from October or November to March or April

Landing fields are located at Tela, San Pedro Sula Tegucigalpa, Puerto Castilla, and Ceiba It is understood that fairly good emergency landing fields can be found at Choluteca and Yero, although these fields have rarely been used

Ceiba

The Vaccoro Field at Ceiba lies at 15° 46′ 36″ north by 86° 15′ west at an altitude of 20 feet above Ceiba The field is rectangular, the long axis is 2,000 feet and the short axis 750 feet The surface is level with natural drainage There are no obstructions near the field, but trees surround it at a distance There are no markings or lighting facilities, nor is there a wind-direction indicator Modern facilities are almost wholly lacking, there are no hangars, repair facilities, quarters, telephone, telegraph, or personnel Gasoline and oil for airplane use are not available in Ceiba Prevailing winds are northeast The weather is generally clear except in the rainy season.

Puerto Castilla

This field, as well as that at Tela, is owned by the Tela Railway Co The runway at this field, which is located halfway between Castilla and Trujillo, is 2,200 feet long by 200 feet wide, running north and south There is one small hangar, and there is a small supply of gasoline and oil on hand Complete machine and carpenter shop equipment is available No spare parts are kept The field may be reached in about 20 minutes by railway motor car from Puerto Castilla

San Pedro Sula

This landing field is open, rectangular, 300 by 1,400 feet, having heavy sod surface and natural drainage, and without special markings, lighting, or other accommodations

Tegucigalpa

This airport is not entirely suited for the landing or taking off of large planes It is located about 3 7 miles from Tegucigalpa, near the wireless station It is a 2-way field, running north and south, with a runway 1,200 by 500 feet Only small amounts of gasoline and oil are available There is one small hangar

Tela

This field is just outside the city of Tela, near the wireless station The runway is 2,200 feet long and 200 feet wide, with clear approaches at both ends The field can easily be identified, as it is due west of the building with " Tela " clearly marked on the roof There is one hangar at the field large enough to house one fairly large single-motored plane and one small plane The hangar is not available for visiting planes unless the Tela Railway Co 's plane is away from the base Standard aviation gasoline and oil can be obtained A complete machine shop and carpenter shop are close to the field, although no spare parts are kept in stock

MEXICO

Two great mountain chains traverse Mexico north and south, leaving between them a number of great valleys and plateaus The low-lying fringe on the Gulf of Mexico and Pacific coasts is know as the Tierra Caliente The western mountain chain is called the Sierra Madre Occidental and the eastern, the Sierra Madre Oriental Peaks reach from 13,000 to over 18,000 feet The Tierra Caliente, extending to 3,000 feet altitude, is tropical The nights are tempered by sea breezes and summers by frequent rains The average annual temperature is 80° to 88° F The Tierra Templado regions, with altitudes of 3,000 to 5,000 feet, are tempered by the elevation The temperature varies slightly throughout the year between 73° and 77° F The dry season is from October to May The Tierra Fria region, 7,000 feet or more high, has an average temperature of 59° to 62° F. Most of the central plateau is in this zone There are few navigable rivers in Mexico Generally the rainy season lasts from May to October, when the heavy rains fall almost daily In northern Mexico the rains are heavy for only a month or two Very little rain falls during the dry season

The increasing network of air lines in Mexico indicates that aviation has exercised a great fascination on the public mind The people are responding in constantly increasing numbers to the use of airplanes in everyday life This attitude indicates continued expansion of the industry

Interest in aviation in Mexico with a view to its commercial possibilities dates back only one brief decade The country, since the earliest interest in aviation was manifested, has been considered as particularly adaptable to the development of air services because of the lack of rail facilities or other means of transportation throughout large expanses of the country

The country has many landing fields equipped with more or less restricted facilities, but which are sufficiently developed and conditioned to serve to a considerable degree the purpose of landing fields for air lines established in the Republic The Mexican Government has given considerable indirect aid to the industry by locating and conditioning various fields, which because of their natural qualities can be used as landing fields in their present shape or might be placed in condition on short notice

Acatlan, State of Vera Cruz.

A field known as El Charco is located about one-third mile west of Acatlan and is 1 9 miles long There are hills nearby No supplies are available

Agua Prieta, State of Sonora.

There is a triangular field located on the outskirts of Agua Prieta, at an altitude of 4,500 feet, which lies in a northeast-southwesterly direction It is possible to use as a guide the tower of the American air port on the other side of the international boundary The peculiarly adaptable topography of the country on which Douglas, Ariz, and Agua Prieta are situated has made possible the establishment of this large air port where it will lie as a single unit across the international border between the United States and Mexico The port will cover 1 square mile in Arizona and approximately the same amount of territory in Mexico As laid out, the space will be in the general form of a double triangle One corner of each side will meet and lap against the other for sufficient distance to permit the largest airplane to cross the boundary on the other part of the field The governor of the State of Sonora has taken quite an interest in this international air port and has intructed the mayor of Agua Prieta to take all necessary steps to carry out Mexico's side of this project When completed this air port will probably be one of the finest in the country A 24-inch revolving beacon of 8,000,000 candlepower, visible for a distance of 75 miles, is to be installed The standard 100-foot white circle and a wind sock have been installed United States and Mexican customs, health, and immigration officials are stationed here

Aguascalientes, State of Aguascalientes.

There are two fields in Aguascalientes which may be used On of them is about 1 2 miles to the northwest of the city and measures about 1,312 feet square There are no obtacles of importance; the equipment, however, is limited to wind signals and indicators The field is bounded on one side by the road from Aguascalientes to Calvillo

The other field is known as a portion of the Colonia Cremial Ferrocarrilera, is about 2,624 feet square, and is located about a mile south of the city There are no obstacles except a fence of the railroad shops which extends along the east side of the field, the Y of the railroad to the north, and the new tank to the west

Alamo Temapache, State of Vera Cruz.

There is a field 2,624 by 492 feet located 0 6 mile northwest of Alamo Tempache It is the property of a private corporation The surrounding obstacles are the company's houses to the southeast and trees to the northwest The Tuxpan River passes within 656 feet of the field. The most appropriate direction in which to effect a landing is northwest to southwest or vice versa. The company has shops, gasoline, and oils.

Allende, State of Chihuahua.

Six-tenths of a mile to the north of Allende is a field 3,280 feet long by 1,968 feet wide and comparatively level. It is surrounded by small hills which may interfere with the landing of planes. The field is connected with the town by a good road. The field has no filling station or repair shop, but fuel, oil, and repair facilities are available in the town.

Amacuzac, State of Morelos.

Northeast of Amacuzac is an uncultivated field about 0.6 mile in length by 0.3 mile in width. This, as well as some cultivated fields near by, can be used for emergency landings.

Apizaco, State of Puebla.

Immediately to the south of Apizaco there is a space of about 247.1 acres, appropriate for use as a landing field.

Arriaga, State of Chiapas.

There is a field to the southeast of Arriaga which is being conditioned by an American company. The field measures 3,280 feet in each direction. Supplies are available at the field. It will be a 1-way field, fenced and cleared, with the standard 100-foot white circle and wind sock. There is no elevation. The field is very rough, but the surface is always hard.

Ascencion Galena, State of Chihuahua.

There is a good, level field located 1.2 miles from the center of Ascencion Galena. It contains about 8,896 acres and is without obstacles of any kind. While the place affords no facilities of a landing field, it is possible to obtain gasoline and oil in the town.

Axochiapan, State of Morelos.

A field located 984 feet east of Axochiapan may be used. This field measures approximately 1,640 by 656 feet, runs north and south, and is on a highway. Bushes are the only obstacles. Gasoline and oil are obtainable in the town.

Batopilas, State of Chihuahua.

About 6.2 miles to the south of Batopilas there is a field called Satevo, which is connected with the town by a highway. The field is about 656 feet long. Twelve and a half miles to the west is a field known as El Manzano connected by a highway. This field is about 1,300 feet in length and has no obstacles. Another field is located 10.5 miles to the west and is known as Algarin. The general direction of the field is north and south, and it measures 984 feet in length. There are other fields within a distance of 20 miles, connected by a highway, which may be considered as suitable for landing purposes.

Burgos, State of Tamaulipas.

West of Burgos about 2.4 miles, on the Rancho del Pedregal, is a suitable field. There are two pieces of prairie land which could be used in cases of emergency.

Campeche, State of Campeche

A 300-acre field is located at the southwest edge of Campeche. It is operated by the Mexican Aviation Co The level field has a grassy surface with natural drainage and a runway 2,788 by 197 feet, northwest by southeast There are no obstructions nor markings The company has private stores of fuel and oil There are no hangers nor shop facilities Other conveniences are available in the town

Carmen Tequixquitla, State of Puebla.

Near Carmen Tequixquitla are large plains which can be used for landings

Carrizal, State of Chihuahua.

On the outskirts of Carrizal is a field which can be used for landings It is 1,640 by 1,312 feet, and it is situated east of the town. There are no near-by obstacles, and gasoline and oil are procurable in the town

Catemaco, State of Vera Cruz

On the shore west of Catemaco there is a field without obstacles other than telegraph lines This field is being conditioned

Celaya, State of Guanajuato

Fields suitable for emergency landings are available near the city Prevailing winds are from the east

Chauhtemoc, State of Chihuahua

While Chauhtemoc affords no landing field there are immense plains near by which could be used for the purpose

Ciudad Obregon, State of Sonora

This field is at an elevation of 50 feet above sea level and is located 1 mile northeast of Obregon on the east side of the railroad The field covers approximately 600 acres and is level, and drainage is poor Its surface is sodded and is reported good The field is very bad for landing in wet weather A wind cone is to be found on the field Accommodations are very poor

Ciudad Ocampo, State of Tamaulipas

The mayor of Ocampo reports that there are several fields in the vicinity which might easily be placed in shape for use as landing fields

Ciudad Victoria, State of Tamaulipas

To the southeast of the city of Victoria is a privately owned field, running from east to west and measuring 1,510 by 790 feet, which, on some occasions, has served as a landing field

Colima, State of Colima.

There is a landing field at Colima where planes have been landing with reasonable safety, notwithstanding the fact it has not been improved A permanent field is being built there for the army

Comitan, State of Chiapas

This field is being conditioned at the edge of Comitan as a 2-way field with the standard 100-foot white circle and wind sock The elevation is 3,000 feet

Culiacan, State of Sinaloa.

The field at Culiacan measures 500 by 3,000 feet and is at an elevation of 150 feet, 1 mile south of the town The surface is rough A wind sock is available Prevailing wind is west by southwest It is held advisable in rainy weather to land on a sand bar in the river at the north side of the town, between the railroad and highway bridges

A second airport is being constructed, which will be available early in 1930, at an elevation of 175 feet, located 3 miles from town The runways will approximate 400 by 2,000 feet Unless lighting facilities are installed, night landings will be hazardous

Cusihuarichic, State of Chihuahua.

The mayor of Cusihuarichic reports a privately owned field measuring 290 by 150 feet and a hangar of 90 by 49 feet

Dolores Hidalgo, State of Guanajuato.

Immediately west of Dolores Hidalgo is a field about 1,640 feet square which might be used as a landing field There are other fields near by which might be used in case of an emergency

Durango, State of Durango.

There are no improved fields near Durango, but a private field is used which is situated 1 2 miles southeast of the city This field covers approximately 247 acres Because of its adequate communication, its satisfactory natural conditions, and the absence of near-by obstacles, the field can be easily made into an airport. Runways are being built The Cia Aeronautica de Transportes S A plans to use this field

Empalme, State of Sonora.

Empalme is located 9 miles by rail from Guaymas, on the south side of the bay Landings have been effected at this field, which is located between the bay and railroad at the north edge of town.

Gomez, State of Chihuahua.

Near Gomez there is a valley approximately 18 miles long by 9.3 miles wide The airport lies in the valley and has gasoline station and shops The obstacles are some hills to the north and south of the field They reach an altitude of approximately 550 meters

Guadalajara, State of Jalisco

A suitable landing field adjoins Guadalajara and is equipped with a hangar The field, 600 acres in area, is rough, the best part being along the railroad The field is connected with the city by an automobile highway and railway The altitude is 5,100 feet, and drainage is good All supplies and shops are available in the city The field is Government owned Care should be taken, as there is a large water hole, sometimes dry, in the center of the field, which is circled by an automobile race track with high sides Winds are from the east

Guanajuato, State of Guanajuato.

There is a landing field at Guanajuato measuring 1,771 by 682 feet

Guaymas, State of Sonora.

There is a permanent airport owned and operated by an American company The field is 3 miles northwest of Guaymas and east of the tannery, which it adjoins, at an elevation of 100 feet It is 2,400 by 1,800 feet, and the surface is level and turf covered and is described as a 2-way field Prevailing wind is east and west A 100-foot white circle marks the field Telephone service is available at the tannery, and two kinds of aviation gasoline may be obtained within one-half hour There are no hangars nor wind sock

Guerrero, State of Chihuahua

South of Guerrero is situated a field known as Mesa de Mineca, about 5 miles square There are no important obstacles, and gasoline and oil are available in Mineca, which is near by

Gutierrez Zamora, State of Vera Cruz.

A field completely level and free from obstacles is located 2 kilometers northeast of Gutierrez Zamora This field measures 1,968 by 1,312 feet and is equipped with a gasoline and oil filling station

Hacienda del Parral, State of Chihuahua

A field is located 1,640 feet northwest of Hacienda del Parral and is considered appropriate for landing Gasoline and lubricants are obtainable in the town, where workshops are located The field is about 820 feet long by 354 feet in width Hills are located on the north and east sides

Hermosillo, State of Sonora

The airport is located northwest of Hermosillo It is a 1,000-foot field, 2-way, equipped and fenced It is marked with the standard 100-foot circle, and has a wind sock The field is north of the river, west of the mountain, and west of the railroad The elevation is 1,500 feet Hotel bus service is available to the field The surface remains hard in all weather Aviation gasoline and oil are obtainable in the town

Hidalgo, State of Tamaulipas

While there is no landing field at Hidalgo, there are fields which are more or less in condition to use in cases of emergency, they being on the ranches known as Tinajas, La Penita, Ejido de Marriquin, and others

Huamentla, State of Puebla

There are fields near Huamantla of sufficient size and condition for use as landing fields

Huayacocotla, State of Vera Cruz

There is nor regular landing field at Huayacocotla, but there is a place suitable for the purpose in the outskirts of the town

Irapuato, State of Guanajuato

There is a landing field known as Animas, reported to be partly equipped Prevailing winds are from the southeast

Jamapa, State of Vera Cruz

About 7 5 miles from the railway and north of Jamapa there is a field completely level and without obstacles The field is about 1,640 feet in length, and gasoline and oils are obtainable

Jiminez, State of Chihuahua.

The mayor of Jiminez reports an abandoned landing field and advises that it could be extended in any direction, as there are no obstacles This field has no improvements

La Rosita, State of Coahuila.

A 172-acre square field with hard surface lies one-half mile west of La Rosita on a highway and is owned and operated by the North American Lloyd. A wind cone and boundary and approach lights are fixed. Floodlights have been ordered. There is one hangar, and good repair facilities are available.

Las Mochis, State of Sonora

This field is at an elevation of 80 feet and is located 2 miles north and 1 mile west of Las Mochis. There is a wind cone located on the hangar. The standard 100-foot circle is readily visible. The field is supplied with red obstruction lights and white and green approach lights. Floodlights are available for landing. Drainage is exceptionally good. Gradient is ½° to the west. Accommodations include a hangar 80 by 100 feet, machine shops, waiting rooms, fuel and oil supplies, and mechanical service. There are two oiled runways.

Leon, State of Guanajuato

There is a field about a mile west of Leon. Fuel supplies and oil may be obtained in the town. It is illuminated only by the incadescent lamps of the military camp.

Llanos del Salado, State of Tlaxcala

Between Santa Ana Napalucan, Santa Ines Tecuaxcomac, Santa Justica Ecatepec, and San Jorge Tezcipan, 7 miles northeast of San Martin Texmelucan and 7 miles from Tlaxcala, lie the prairies of Salado, which contain about 500 acres. There are roads leading to the last two towns named. There are no shops or supplies of gasoline.

Llanuras del Soltepec, State of Tlaxcala

These prairies are in the northwest part of the State near the Hidalgo border, and contain about 2,500 acres. The nearest town is Apam, State of Hidalgo, about 10.5 miles distant. Several roads and the Mexican Railway are accessible. There are no obstacles near by, neither are there shops nor gasoline supplies.

Manual Doblado, State of Guanajuato

A short distance from Manual Doblado are fields of the Hacienda de San Jose del Paso, which may be used for emergency during the dry season. Approximately 10 miles to the east of the city are fields which can be used at any season of the year. Prevailing winds are from the southwest.

Matamoras, State of Tamaulipas

The following fields in Matamoras are suitable: Federal, Marcelina, Carnes Tolendas, Mesquite Caido, and Hacienda del Tejon. They are located 5, 8, 9, 9, and 62 miles from the town. The military field lies to the east of the city and is the most used field.

Maytorena, State of Sonora

An army landing field located in Maytorena has been used by civilians for emergency landing.

Mazatlan, State of Sinaloa.

The elevation is at sea level about 3½ miles northwest of Mazatlan. The field covers approximately 400 acres. Drainage is good, and the surface is hard.

Surrounding jungle and low hills on the east side form obstructions to landing The prevailing wind direction is west by southwest Accommodations are lacking Night landings are hazardous

Merida, State of Yucatan.

The field of the Cia Mexicana de Aviacion S A is located 1 2 miles southwest of Merida and is connected with the town by a macadam highway This field has three runways, one 3,280 by 164 feet, another 1,968 by 164 feet, and the third 1,640 by 164 feet There are no obstacles Repair shops and a filling station are under construction

A field called El Fenix, belonging to the State Government, is located 3,936 feet to the northwest of the town This field is 1,583 feet long, its width varying from 328 to 1,312 feet The obstacles are four windmills and some workshops The field is equipped with a hangar, shops, and supplies of gasoline and oils

Mexicali, State of Baja California.

At Mexicali a new Government landing field with a hangar has been established immediately to the east of the Government Palace, which is understood to take the place of the old landing field and hangar, located in Newton (Pueblo Nuevo), which is southwest of the main business part of Mexicali

Mexico City, Federal District—Valbuena Airport

The National Bureau of Aeronautics is constructing a large civil airport at Mexico City The altitude is 6,700 feet The dimensions of the field are 5,900 by 1,968 feet, and it contains altogether 256 acres, which land cost $500,000 This is a permanent field and is sponsored and managed by the National Government It was formerly opened in 1928 All commercial aircraft enter Mexico City at this port The facilities are excellent The field lies approximately 3 miles east of the city and may be reached in 10 minutes by automobile over a paved highway from the center of the city The surface is level with excellent artificial drainage There are no obstructions There are three excellent runways, each 131 feet in width, their length being, respectively, 4,100, 3,936, 3,300 feet Plans for further development of this airport include the construction of extensive hangars and workshops, the installation of instruments for determining atmospheric conditions, and the installation of an extensive lighting system such as is used in the most modern fields is planed Part of this is completed There will be a beacon light visible at a distance of 62 miles, yellow boundary lights, approach lights, and flood and runway illumination Before the opening of this airport the planes of the Mexican Postal Air Service and of the private airlines used the military airport of Valbuena, which adjoins the civil airport and which is equipped with repair shops and other facilities Valbuena, however, was taxed beyond capacity, and the opening of the new airport has relieved congestion

Minatitlan, State of Vera Cruz

There is an L-shaped field 0 6 mile north of Minatitlan, with automobile-highway connection with the town The field measures 2,296 feet long by 328 feet wide for its major portion and lies east and west, and 1,800 by 328 feet for the other portion which lies north and south There are no obstacles near by Gasoline and oil supplies, as well as repair shops, are available

Miquiguana, State of Tamaulipas

On the outskirts of Miquiguana is a field which is approximately 4 kilometers in length

Monterrey, State of Nueva Leone.

A permanent airport adjoining the highway and near Monterrey is owned and operated by the National Government There is a wind-direction indicator, but no markings have been fixed The surface is level and grassed Five mechanics are employed at the shop and temporary hangar First aid, telephone, telegraph, dining services, and fire apparatus, as well as gasoline and oil supplies, are available

Moraleon, State of Guanajuato

To the east and north of Moraleon are fields which might be used for landings Prevailing winds are from the south

Munoz, State of Puebla

Between Munoz and Apizaco are lands belonging to the Zacatepec Ranch, adjoining the Mexican Railway, which could be utilized for landings

Nautla, State of Vera Cruz.

There is a landing field 2 kilometers southeast of Nautla with a highway connecting them The field is 1,312 by 984 feet, lies north and south, and is 1,640 feet from the shore This field is used without difficulty Gasoline and oil are available

Nuevas Casas Grandes, State of Chihuahua.

On the outskirts of Nuevas Casas Grandes and to the east there is a field which could easily be placed in condition for landing and which is connected with the town by an automobile highway This field is approximately 6,600 feet square To the east there are some hills, at the foot of which is a small lake Supplies of gasoline and oil may be obtained in the town where repair shops exist

Nuevo Laredo, State of Tamaulipas.

The Mexican Postal Service has used the military field located 2 5 miles west of Nuevo Laredo There is another field 2 5 miles south of the city, where the National Government owns and operates a permanent airport There are no markings The level field is grass covered and has natural drainage Facilities include one hangar and a machine shop, fire apparatus, and first-aid, telephone, telegraph, and dining services Fuel and oil are available. It is reported that the field is 2,696 by 2,870 feet, the area being about 180 acres

Nuevo Morelos, State of Tamaulipas.

North of Nuevo Morelos there are some prairies which can be used in cases of emergency.

Oaxaca, State of Oaxaca.

The landing field is northeast of Oaxaca and measures 2,296 by 164 feet It is marked by a 100-foot circle There is a wind sock Aviation gasoline and oil are available in the town

Ojinaga, State of Chihuahua.

About ¼ mile south of Ojinaga is a landing field connected with the town by a highway The field measures 820 by 656 feet and is surrounded by brush About 656 feet to the north and west there are some small hills, to the east a building, and to the south some hills. The necessary supplies, such as oil and gasoline, are procurable in the town

Ortiz, State of Sonora

The only landing fields at Ortiz are those which have been used by civilians for emergency landings

Ozuluana, State of Vera Cruz

There is a field 656 by 328 feet to the north of Ozuluana Gasoline and oil may be procured

Pachuca, State of Hidalgo.

At a place 2 5 miles south of Pachuca there is a field about 2,296 feet in length While there is no filling station nor shops at the field, these facilities are available in the town The Mexico-Pachuca highway passes the field

Pajapam, State of Vera Cruz.

The only landing space available is the shore about 9 3 miles east which is without means of communication There is a mountain on one side No supplies are available

Palmillas, State of Tamaulipas.

In the suburbs north of the town is a landing field known as Palmilla

Payo Obispo, Territory of Quintana Roo

A field in the form of a cross is located about 984 feet from Payo Obispo and measures 1,968 by 1,312 feet The surroundings are, to the south, the ocean, to the east, the town, to the north and the west, small hills There are repair shops in the town where gasoline and oils may be obtained

Penjamo, State of Guanajuato.

To the south of the city are cultivated fields which may be used for landing in an emergency, and at the station of Palo Verede are other level fields for emergency landings Prevailing winds are northwest

Perote, State of Vera Cruz

A field is located 1 kilometer to the north of Perote and adjoining San Carlos Fort, which was used as a landing field in 1927 by airplanes of the Federal Government It is near the Interoceanic Railway and Mexican national and state telegraph lines, and has automobile-highway connection with Mexico City, Puebla, Jalpa, and other towns of importance The field is about 1,640 feet in length and needs reconditioning There are no shops, but gasoline and oil are procurable in the town

Piedras Negras, State of Coahuila.

A field called Campo de Harriet, 0 6 mile east of the town, is owned and operated by the North American Lloyd The square field has a solid surface over its area of 2 5 acres There is a wind cone

Platon Sanchez, State of Vera Cruz

There are no regular landing fields at Platon Sanchez, but in the center of the place, to the south of the Plaza Arrieros, there is a space of 702 by 274 feet which might be used for an emergency landing

Puebla, State of Puebla.

This field has been described as one of the best in the country It is a 6-way field allowing a distance of 1,000 feet. It is located at the eastern edge of Puebla There are no obstacles The elevation is 6,500 feet. A paved road connects it with Mexico City

Reinosa, State of Tamaulipas

There is no regular landing field at Reinosa, but there are fields appropriate for the purpose, such as a large plain about 0 6 mile from the city

Rosales, Dto. de Camargo, State of Chihuahua

Within a kilometer of the town there are fields which can be used for landing purposes The most suitable is one northwest of the town This field is completely level and measures approximately 1,312 by 656 feet The principal obstacle nearby is a ridge of mountains about 2 kilometers to the northwest of the field. No shops are available, but gasoline and lubricants may be had in the town

Two kilometers to the east of the town is a field on a good road. This field on its longest side measures about 3,280 feet, with the opposite side measuring about 2,920 feet The field is approximately 1,476 feet wide To the northwest are ruins of an old fort about 328 feet away, but these can easily be removed The shops of the National Railways are located approximately 2,000 feet distant Gasoline and oils can be obtained in the city

Salina Cruz, State of Oaxaca.

A level field 2 5 miles in length and 1 2 miles in width lies north of Salina Cruz The brush on the field should be removed to make it satisfactory for landing South of the town is another field which measures approximately 0 6 mile in length by 0 3 mile in width

Saltillo, State of Coahuila.

The National Government owns and operates a permanent grass-covered field near Saltillo and on a highway Five mechanics are stationed at the temporary hangar and machine shop First-aid, telephone, telegraph, and dining facilities, and fire apparatus are available There are a wind indicator and stores of oil and gasoline.

San Andres Tuxtla Catemaco, State of Vera Cruz.

Near this town is a suitable landing field which it is the intention of the citizens to place in proper condition The mayor reported that the field is level, but dimensions were not given

San Carlos, State of Tamaulipas.

There is a field about 0 6 mile east of San Carlos which could easily be put into shape for landings, and the authorities have expressed a willingness to cooperate in such an undertaking

San Cristobal, State of Chiapas.

There is a field at San Cristobal which measures 1,312 by 492 feet. Adjoining the field is a sports field and on another side is an inclosed cemetery The National Highway runs alongside. The landing field is without obstacles, and is good for wet-weather landing.

San Francisco de Borja, State of Chihuahua.

There is a field to the east of this town which might be put in condition for a landing field It is about 0 6 mile in length and 2,300 feet in width It is bounded on the north by a ridge of hills, while the San Francisco Borja River flows along the other sides

San Geronimo, State of Oaxaca.

There is a good natural field about 9,840 feet south of San Geronimo, with a dirt road connecting them The Mexican Aviation Co has an option for buying the field and, as soon as it actually owns it, will supply fences to keep the cattle away It also contemplates building a small station and a fuel and oil storehouse This field has no obstacles and is over 300 meters long The surface is at sea level and is good

San Luis Potosi, State of San Luis Potosi

A large permanent airport is owned and operated at San Luis Potosi by the National Government The field lies next to a highway, 1 kilometer west of the town, and has a level surface with natural drainage There are markings in the center and two wind-direction indicators There are no runways There is one large hangar and four small ones and a complete repair shop Men are stationed there for maintenance and repair work There are stores of fuel and oil available, first aid, telephone, telegraph, dining facilities, and fire apparatus

Santa Maria de Ixcatepec, State of Vera Cruz

There is no actual landing field, but formerly a field situated about 27 miles from the town was used for that purpose This field was connected by a highway The prevailing winds are from the north The present condition and its precise location are not known

Santiago Marabatio, State of Guanajuato

There are lands belonging to the town of Marabatio del Encinal which are sufficiently level for use as emergency landing fields Prevailing winds are from the south

San Salvador Acajete, State of Vera Cruz.

The land in the vicinity is rough There is an available space of about 0 6 mile square located in a small valley called El Rincode la Maya northwest of the town

Santago Tuxtla, State of Vera Cruz

There are several fields which might be conditioned as landing fields, among them one called La Luz, located 1 2 miles east of the town and which measures 2,300 by 1,312 feet Repair shops and gasoline and oil are available in the town Six-tenths of a mile west of the town is another suitable field This measures 1,640 by 984 feet

Santo Tomas, State of Chihuahua.

Surrounding Santo Tomas are plains which might serve as possible landing fields

Soto la Marina, State of Tamaulipas

The first of five fields adjoins the town and is near the cemetery; it lies north and south and measures 820 by 500 feet, with no obstacles near by The second is located 42 miles from the town, lies north and south, and measures 1,640 by 656 feet, with no obstructions The third and fourth are on the ranch known as Coma and the hacienda of San Jose de Las Rusias Both lie north and south, and each measures approximately 1,640 by 820 feet The fifth is on the Hacienda del Chamal, 36 miles from the town, and measures 984 by 492 feet These fields lack shops and gasoline and oil, but these are found in the vicinity and in the town.

Tantoyuca, State of Vera Cruz

There is a landing field some 5 miles south of Tantoyuca The field measures 3 280 feet north and south and 1,640 feet east and west, and is connected with an automobile highway There are no obstacles in the vicinity, and the field has no special improvements

Tampico, State of Tamaulipas

The Tampico flying field is known as Campo Moralillo and is owned and operated by the Cia Mexicana de Aviacion, S A The field is situated approximately 3 miles west of the city, on the north side of the Panuco River 9 miles from its mouth, in latitude 22° 13′ north and longitude 97° 51′ west, and has an elevation of approximately 40 feet above sea level A macadamized road connects the field with the city The field is 2,500 by 1,600 feet and is covered with short grass The field might be described as in the shape of a capital L The area is approximately 325 acres A runway 1,968 by 164 feet runs north and south; another 3,280 by 328 feet extends east and west It is not equipped with the standard circle, and it has no name on the hangar or other marking The hangar is equipped with a wind-direction indicator No lighting facilities exist at this field Personnel for servicing and repairing aircraft are available The company maintains telephone service at its office near the hangar No facilities for meals, quarters, telegraph, or first aid have been installed, nor is there any fire apparatus available Small quantities of castor oil and unlimited quantities of automobile lubrication oils and aviation gasoline may be procured at the field A southeast wind usually prevails Fog is quite unusual

The company has recently purchased a tract of land aggregating 309 acres, situated 5 6 miles from the center of the city, on the Tampico-Victoria highway The property, known as El Arenal, lies 98 feet above sea level and has a grade of approximately 1° from east to west The field extends 4,750 feet east and west and 3,170 feet north and south It is of sandy loam and covered with short grass Construction of improvements was to begin late in 1929 They will include a steel hangar 120 by 120 feet to accommodate the largest passenger planes, sleeping quarters, baggage room, and customs and immigration and restaurant facilities

Tapachula, State of Chihuahua.

The Mexican Aviation Co owns a field 2 3 miles southwest of Tapachula with which it is connected by a good dirt road The airport contains 148 acres It is a level field with a grassy surface and natural drainage Only two runways are maintained Each is 3,280 feet long and 394 feet wide The company maintains private stores of fuel and oil, and all conveniences are to be had in the city.

There is an immigration and customs office on the field No obstructions are near

Tarimoro, State of Guanajuato.

Near Tarimoro are fields which can be used for emergency landings, the principal one being located on the plains west of the town Prevailing winds are from the northwest

Tecpan, State of Guerrero.

A field called Llanos de la Carrera, in fair condition, is located 1,600 feet from the town and 1,600 feet from the beach

Tehuacan, State of Puebla.

The airport is located at the north edge of the town The surface is sodded and remains hard during all weather There is a wind sock No runways are marked, but approach is safe in any direction The field is triangular The best landing is from northwest or southwest The elevation is 5,500 feet above sea level There is a T marker in the center of the field

Tehuantepec, State of Oaxaca

The area north of the bridge over the Rio Tehuantepec may be used as a landing field

Tehuatlan, State of Vera Cruz.

It is reported that there is no regular landing field but that the private company which is drilling for oil in the region is preparing one

Telixtac, State of Morelos.

East of Telixtac is a field approximately 1,640 by 656 feet in size Obstacles are small shrubs The field is connected by highway with the town, where gasoline and oil may be obtained

Temores, State of Chihuahua.

There is a landing field which measures 1,640 feet from east to west and 656 feet from north to south on the outskirts of Temores It has a slight elevation on the north portion Supplies of oil and gasoline are obtainable in the town To the west of the town is another field suitable for landing, located 3 5 miles from the city and 0 6 mile from Santa Matilde Ranch This field is about 0 6 mile square and has no obstacles

Teoselo, State of Vera Cruz

Near Teoselo to the eastward is a field known as Llano Grande which might be placed in condition to be used as a landing field There are no obstacles near by

Tepalcingo, State of Morelos.

There is a large expanse of ground northwest, north, and northeast of Tepalcingo which, because of its level nature, may be used for landing.

Tepic, State of Nayarit

The field is located on the northeastern edge of Tepic It is a 1-way field measuring 1,000 feet The elevation is 4,200 feet Markers consist of a wind sock and the standard 100-foot white circle. The surface is hard and suitable during all weather conditions. Drainage is excellent

Tequila, State of Jalisco

One and one-fifth miles east of the town and on the highway to Guadalajara is a field 1,475 by 1,050 feet. Supplies of gasoline and oils may be obtained in the town.

Tia Juana, State of Baja California.

A new field has been established in the vicinity of the Tia Juana hot springs. It is 1 mile east of the town and is described as a 1-way field.

Tierra Blanca, State of Vera Cruz

About 1,640 feet north of the town is a suitable field measuring 2,624 feet north and south, and 5,000 feet east and west, in the extreme southwest of which there is being constructed a military barracks. Some trees are found near by. The railway shops are available near by, and gasoline and oil are procurable.

Tlapacoyan, State of Vera Cruz.

A field about 2.5 miles northwest of Tlapacoyan is about 0.6 mile in length and is connected with the town by an automobile road. The field is in crops. Gasoline and oils can be obtained near by.

Tonala, State of Chiapas.

A field 1 mile southwest of Tonala has been cleared and fenced as a landing field. This field, though soft in rainy weather, is in good condition at other times.

Toluca, Federal District

There is a landing field 1.2 miles east of Toluca. This field is known as Santa Teresa, is privately owned, and is connected with the town by an automobile highway. Gasoline and oil stations and repair shops are in the town. Some trees near by are the only obstacles. There is another field at this place which is being used as a landing field and which is being improved.

Torreon, State of Coahuila

A good landing field which measures about 3,280 by 5,280 feet is located to the southeast of Torreon. It is equipped with day signals and markers. Oil and gasoline are obtainable at the field, where there are hangar facilities. There are no runways. The ground is soft and very dusty.

Totolapam, State of Morelos.

About one-fourth mile south of Totolapam is a field 0.6 mile square. There is a hill about one-fourth mile west of the field. There are no improvements. Gasoline and oil are available in the town.

Tuxtla Guierrez, State of Chiapas

A good landing field during all kinds of weather is located at Tuxtla Guierrez. The field is at the edge of the town and is equipped with a wind sock.

Valle de Zaragoza, State of Chihuahua.

While there is no prepared landing field near by, there exists a field, which may be improved, 1 mile east from the town. It measures 1,312 by 984 feet, and adjoins the Hacienda de Bellavista. There are hills near by.

Vera Cruz, State of Vera Cruz.

The Mexican Avaiation Co owns a field at Tejeria 10 miles west of the port of Vera Cruz The field lies about one-fourth mile from the railroad station, where meals are available The company carries a stock of fuel and oil and has a steel hangar 125 by 125 feet There are a number of mechanics there, repair shops, and communication with Vera Cruz by means of an auto-rail over the lines of the Mexican Railway, a ride of about 25 minutes

Viesca Parias, State of Coahuila

This field is located 1,600 feet from the railroad station on the Coahuila Pacific Railway It measures about 2,624 by 3.280 feet In the town there are repair shops and supplies of gasoline and oil

Villa de Casas, State of Tamaulipas

There is a field south of Villa de Casas which could be used for landing purposes

Villa de Catemaco, State of Vera Cruz.

There is a field 2,050 by 1,075 feet located northwest of the town This belongs to the municipality

Villagran, State of Tamaulipas

While there is no equipped landing field, there are fields mentioned as suitable in case of emergency landing, one located west of the village on the Laredo-Mexico highway, and the other on the east side

Villahermosa, State of Tabasco

The Mexican Aviation Co owns and operates a 100-acre level field northwest of Villahermosa The T-shaped field is at sea level with a grass surface and natural drainage Runways measure 1,870 by 328 feet north and south, and 1,443 by 328 feet east and west There are no markings, obstructions, shops, nor hangars Oil and gasoline are available

Villa Tempoal, State of Vera Cruz

There is a sports field located on the northeast outskirts of the town which measures 1,312 by 656 feet and which could serve as a landing field Its general direction is east and west, and it is accessible to the Tampico-Tamaulipas Highway To the south and east of the field is the knoll on which the town is located To the north, northwest, and west, about 0 6 mile distant, is the Tempoal River The field is level There are repair shops in the town where gasoline and oil are procurable

Zacatecas, State of Zacatecas

There is a field located about 7 5 miles southwest of Zacatecas and 3 7 miles from the southern part of Guadelupe This lies east and west and contains about 47 acres The field has no improvements nor supplies of gasoline or oil, but it is reported as being under consideration for use as a base for the air route from Mexico City to Ciudad Jaurez

Zongolica, State of Vera Cruz.

There are two suitable fields located about 37 miles from this town, one called El Cedro and the other El Potrero These are located about 8 6 miles from the railway No gasoline nor oil is available.

NICARAGUA

Two mountain ranges traverse Nicaragua Several peaks are extinct volcanoes The plateaus and highlands are healthful, but the lowlands are hot and tropical There are two large navigable lakes Lake Nicaragua is 110 miles long and 45 miles wide, Lake Managua is 38 miles long and 10 to 16 miles wide In the eastern part of the country rains are frequent throughout the year, while in the western part there are wet and dry seasons The dry season is from December to April

Archibold Field, Managua, is a two-way field at an altitude of 160 feet above sea level, 2½ miles due east of the city and three-fourths mile from Lake Managua; latitude 12° 11′ north and longitude 86° 15′ west The field is rectangular, 80 acres in area, running east and west The surface is hard during the dry season from November to May, at other times it is spongy after rain Drainage is good There are no runways Three inclosed steel-framed hangars are available

Small landing fields are maintained by the Government at Corinto, Rama, Acoyapo, and Deer Island, near Bluefields There are no hangars, machine shops, nor stores handling plane parts It was reported late in 1928, that 20 available landing fields were scattered over the country There are no commercial landing fields on the east coast of Nicaragua At Puerto Cabezas a temporary field has been used Amphibians take off and land there with comparative ease The Bluefields Harbor affords a good lee for the anchorage of seaplanes The prevailing wind is east

PANAMA

Two mountain ranges which traverse the Republic inclose several valleys and plains The mountain slopes are forested The climate is tropical but more agreeable in the higher interior where the temperature averages 66° F, as compared with an average of 80° F on the coasts The summer or dry season extends from January to April It is rainy most of the rest of the year, with heaviest rains in October and November Winds during the dry season are from the northeast, and ocean breezes always temper the heat. The average rainfall on the Atlantic side is 140 inches a year, compared with 60 inches on the Pacific side and 93 inches in the interior. The days are usually cloudy during the wet season

Weather conditions and proximity to the city of Panama and other distribution centers make the Pacific side of the Isthmus more suitable for airports There are very few areas sufficiently flat to permit their being made suitable for airports, and such flat areas as exist in the Canal Zone have been utilized for other purposes The necessity of combining facilities for both land planes and seaplanes, and the disadvantages of the unprotected open water of Panama Bay, indicate that the area adjacent to Limon Bay on the Atlantic side is ideal for development within the Canal Zone

Regulations effective as of February 28, 1929, designate, until such time as adequate commercial airports are established in the Panama Canal Zone, the following fields (A) For landplanes, (1) France Field and (2) Albrook Field and Fort Clayton (emergency only);

(B) for seaplanes, (1) on the Atlantic side, Cristobal Harbor, and (2) on the Pacific side, Balboa Harbor

Aguadulce.

Located 2 miles southwest of Aguadulce, this field, triangular in shape, measures 450 by 1,350 feet It is considered to be a good field and has a grass surface It is not marked and there are no facilities for servicing aircraft

Anton

This field, 1,200 by 3,000 feet, lies close to Anton and is an all-weather field Wires border the southeast side, but other approaches are clear There are no markings or servicing facilities

Balboa, Canal Zone

There is an excellent landing area for seaplanes in the harbor, although there are no markers nor facilities for night landings. Mooring buoys are available north of Pier No 18 There are no facilities for servicing, housing, or repairing aircraft

Albrook Field is under construction, but it is not marked and is not available for use.

Chame.

The Chame Field, measuring 900 by 4,500 feet, lies 1 mile north of the town There are wires along the road east of the field, and there are ant hills and rocks on the field Thick trees are on the southeastern side There are no marks nor facilities for servicing aircraft

Chorrera

There is a good all-weather grass-surfaced field measuring 1,950 by 600 feet just south of Chorrera Approaches are clear There are no markings nor servicing facilities

Coco Solo, Canal Zone

The naval air station at Coco Solo measures 600 by 2,000 feet It is not marked with the name, but it lies one-fourth mile east of the city and north of France Field A standard wind cone is over a hangar on the west side of the field There are facilities for night landings of seaplanes and for servicing, housing, and repairing aircraft

Cristobal, Canal Zone.

Folks River provides an excellent landing area for seaplanes. There are no conventional markings The facilities of France Field and Coco Solo are available

France Field measures 2,000 by 3,000 feet and lies one-fourth mile east of Colon FRANCE FIELD is marked on both sides of the roof of a hangar on the north side of the field. The southern limit of the field is marked by boundary lights, and other lighting facilities are sufficient for night landings Facilities for servicing, housing, and repairing aircraft are available

David.

This Government-owned field has a runway 300 by 3,000 feet This is a port of entry into Panama The name of the field is not marked, but the landing area is marked with black and yellow boundary cones, and there is a wind cone There are no lighting facilities Improvements, including steel hangars, are planned

Fort Amador, Canal Zone.

An emergency field, not marked, measures 150 by 1,200 feet. Floodlights are available

Fort Clayton, Canal Zone.

This emergency field, 250 by 2,800 feet, may be found by the name on a near-by roof There is a hangar 66 by 140 feet A wind cone is mounted on a tower beside the hangar Floodlights are available as are fuel and water A 15 to 18 mile cross wind lasts throughout the dry season

Fort Davis, Canal Zone.

This unmarked emergency field measures 300 by 1,500 feet Floodlights are in use

Fort Sherman, Canal Zone.

This 200 by 1,200 foot field equipped with floodlights may be used in an emergency

Garcien

This field, 1,500 by 2,700 feet, has clear approaches and a good grass surface, but is not marked and has no facilities for servicing aircraft

La Mesa.

The la Mesa field, 15 miles west of Santiago, measures 825 by 3,900 feet There is a grassy surface, but a few trees are on the field There are no markers nor servicing facilities

La Pena.

This field, 1,200 by 3,600 feet, is surrounded by forests, and there are no markings It is a good field with a grass surface There are no supplies of fuel and water, nor means of repairing aircraft

Las Lagas

This is a long, narrow field running north and south It is not marked and has no means of servicing aircraft The grassy surface is considered fair

Mandinga.

This 270 by 1,530 foot field, near San Blas, is slightly rolling and has a clear approach at each end (north and south) Small buildings are close to the west side and low trees on the east. The field is not marked, but is has a grassy surface and is considered fair There are no facilities nor supplies

Panama City.

This large Government-owned airport (a port of entry) is 1½ miles from the city and contains 173 acres The completed runway is 200 by 2,000 feet Two others will be built The approaches are clear and good, and standard black and yellow boundary cones mark the runway The airport is not marked by name, but a wind cone is up There is a 15 to 18 mile cross wind in the dry season There is no lighting equipment, but there are facilities for servicing and repairing aircraft Several extensive improvements are under way or planned

Penonome

This field, 1,050 by 3,900 feet, is an all-weather landing place 3 miles south of Penonome There is a grass surface, but no markings nor facilities for servicing aircraft are at the field

Pina Pina.

Lindbergh Field, measuring 750 by 1,500 feet, is 6 miles northwest of Panama City. The field is not as good in wet weather as is desirable

The Scadta company has facilities for servicing seaplanes with gasoline and oil at Puerto Escoces and Garachine

PARAGUAY

Paraguay consists of a plain surmounted by low mountain ranges lying to the eastward Probably two-thirds of the area is in forests. There are large areas west of the Paraguay River used for cattle raising The climate is hot, the northern third of the country lying in the Torrid Zone There are cool breezes from the south, but at times they give way to the heat There are four seasons, the summer being November to March and winter July to September 15

The French company Aeropostale, operating through Paraguay into Argentina, has given some attention to the provision of landing fields along the route

The square Government airport at Asuncion is at 25° 21′ south by 57° 37′ west and measures 6,562 by 6.562 feet The level surface is sodded, and it is used by military and civil planes, including those of the Aeropostale line There are no obstructions, and the field, visible from a great distance, is marked by a white circle and a wind cone The temperature varies between freezing and 95° F and averages 83° F Fogs are rare Winds are north-northeast and south-southwest There are three hangars (corrugated iron), a repair shop, supplies of fuel, oil, and water, and local transportation and communication facilities

PERU

There are three zones in Peru The western lowlands along the Pacific are 20 to 120 miles wide The plateaus lying between the central and western Andes from 4,000 to 14,000 feet above sea level form the second zone The remaining area is made up of the eastern slopes falling toward the Amazon There are over 3,000 miles of navigable rivers, and Lake Titicaca on the Peruvian-Bolivian boundary is the highest navigable lake in the world In the main, the climate is semitropical, but it is influenced by the altitudes It is cool in the interior and tropical in the Amazon region There is little rain along the coast, but the Humboldt Current moderates the climate, and the temperature remains practically constant at 68° F. Heavy fogs from the Pacific occur at times Rains are frequent in the Amazon region The climate in the regions between 3.000 and 9,000 feet is temperate and healthful

Peru is appreciative of the opportunity created by commercial aviation Considerable indirect assistance has been afforded by the Government, which is preparing adequate airports The difficulty of ordinary transportation has assisted to a surprising degree the development of Peruvian air transport North and south along the coast, where the great bulk of the inhabitants live, the country is ideal for flying, a skilled pilot finds no difficulty in landing or taking off at almost any point Another factor making for safe flying is the almost complete absence throughout the year of either heavy fog or high winds Commercial companies are making use principally of Government fields or, in some localities where they do not exist, an open meadow or a stretch of desert with a single hangar and one mechanic

Ancon.

The naval aviation station is located at Ancon, which is connected with Lima by rail The trip by rail between these two places takes about an hour and a half There are two hangars of steel construction large enough to accomodate approximately 10 planes

Bellavista

The field at Bellavista, between Callao and Lima, is used by the Faucett Line It is located 3 miles from Callao on the concrete road which connects the two cities

Iquitos

Located on the Amazon River, the airport is the main base for seaplanes of the Peruvian Navy Line There is a large hangar for four planes, shops and quarters, fuel and oil depot, and other facilities necessary to a base for seaplanes

Las Palmas.

The military field is at Charrollos, a suburb of Lima This field is easily located from the Moro Solar, a large solitary rock on the shore rising some 600 feet above the plain It is almost 1 mile northeast of this rock and about 8 miles south of Lima The airport is large, well marked with a landing circle, and bordered on the west side by a row of buildings, quarters, hangars, shops, etc All facilities will be found there, including space for 12 planes This is the location of the Army School of Aviation Seasonal effects are confined to fogs in the winter months

Lima.

It is proposed to use the Santa Beatriz race track inclosure as a Lima airport, but only for taking on or discharging passengers or mail

Masisea

Masisea is the junction point for the seaplanes from Iquitos and landplanes from San Ramon on the Peruvian Navy Line There is a triangular landing field some 1,500 feet long and 300 feet wide A hanger for four planes, fuel and oil supplies, a wireless station, and other facilities are available A hotel is to be built shortly There is a wireless station connecting with Lima and Iquitos

Puerto Bermudez.

This is an L-shaped field, measuring 1,500 by 1,200 feet, each wing being 200 yards wide

San Ramon—Government Army airport.

San Ramon is connected by rail and roads with Lima The field is 2,400 feet long by 600 feet wide, with a hanger for three planes. Quarters for flying officers, supplies of fuel and oil, workshop and offices, and a modern lighting system are available.

Other fields.

Other municipal fields of lesser importance are located at Talara, Piura, Paita, Pesco, Ica, Mollendo, Ilo, and Arequia. There are no hangers at these fields, but fuel may be purchased from local oil dealers.

A landing field with a radio station has been established at Puerto Leguia on the San Ramon-Iquitos Line.

PORTO RICO

Owing to the mountainous terrain of Porto Rico, there are not many spots on the island offering possibilities for the construction of a good landing field except on the coastal rim, which has some excellent sand beaches.

A large marshy peninsula, 3,000 by 300 feet, in San Juan Bay has been leased and the Isla Grande Airport created. Much of this land was filled in, and a roadway leading to it was constructed. This field is owned and operated by an American company. It is situated at an altitude of 10 feet above sea level a distance of 1 mile from the city by automobile and only a few hundred yards by launch. The field measures 3,000 by 300 feet and covers 30 acres, being triangular. The surface is of hardened clay and gravel. A completed landing strip is 3,000 by 300 feet, another will be 1,800 by 300 feet. A third, which is planned, will make it a 6-way field. There are no markings. An obstruction in the form of a power line extends southeast of the field, but it will be removed shortly. Red lights at night give warning of this obstruction. The standard 100-foot white circle will be installed. There is a single hangar measuring 140 feet by 125 feet with ample clearance. It has ample capacity for five trimotored, 12-passenger planes. A wind-direction indicator, though not illuminated, serves present requirements. There are no boundary or approach lights, although there is light for landing.

Six mechanics and other help are available. Sufficient equipment provides protection against fire and pilferage. First-aid facilities, telephone, and meteorological data are available. Radio call letters are given as WMDU. One wave length is 32.4 meters, the other length 54.4 meters. Prevailing winds are south and east by northeast. There is a marked absence of fog. The erection of a radio station is contemplated, which will act as a central receiving and transmitting station for all West Indian operations, in conjunction with smaller stations at all regular landing fields of the company. When completed this field will have a class 1 rating.

There is only one other area in San Juan which can be utilized for landing purposes, this being a field used by the West Indian Air Express during its operations, but the field is small and not satisfactory.

The bay at San Juan is large and well protected, offering excellent landing facilities for seaplanes. In the interior of the island the particularly hilly terrain does not have many places which might be used for landings. There are said to be a number of reasonably flat spots, however, which might be used by individual owners

There are no beacons or artificial landmarks identifying any of these fields

SURINAM

Surinam, 54,000 square miles, is slightly larger than North Carolina and has a population of over 100,000 There is a low coastal region which rises rapidly to a higher, hilly, heavily wooded interior which is nearly impenetrable The climate is tropical The two dry seasons are September and October and March and April The other parts of the year are rainy The average annual precipitation is 100 inches The average temperatures at Paramaribo is 75° F

Pan American company has selected a location on the Colonial Railroad, 28 5 miles from Paramaribo, for a landing field The land is pure sand with little or no vegetation, and the field has been extended until it now measures approximately 6,560 by 3,936 feet The intention is to erect houses for the staff and a small radio station to be used in connection with the mail service The only connection this field has with Paramaribo is by rail

URUGUAY

The land in Uruguay slopes in rolling plains toward the west, east, and south The climate is temperate along the coast and ranges to subtropical in the north It is healthful The mean temperature in summer is 72° and in winter 55° F The winter months are June, July, and August

Interest in aviation is largely centered in and about the city of Montevideo The country is small, with a relatively large proportion of its population living in the capital There has been some recognition for aviation from the Government in the form of a subsidy to maintain a flying school located at Melilla, near Colon

Melilla.

This field is due north of the Cerro de Montevideo and 11 miles northwest of Montevideo It is practically rectangular and measures 4 000 feet by 2,700 feet. The long axis runs northeast and southwest There are no runways A group of trees on the south side of the field and telegraph wires on the west are the only obstructions There is no circle in this field The prevailing winds are north with an average of 15 miles until the latter part of the afternoon, when the winds shift east and northeastward The field is well drained and has an even surface It is 160 feet above sea level

Pando.

This field is located 20 miles northeast of Montevideo It is rectangular and measures 2,624 by 3,936 feet Hangars 295 feet in length are located southwest of the field. Two radio towers are in the same locality. A white circle is in the middle of the field, and white posts outline the outer extremities of the field The towers are white and red and the hangars are gray On all sides electric lamps are placed 50 feet apart On the hangars and towers are placed red lamps A searchlight indicates the arrival of all planes at night

Paso Mendoza.

The military school called Esquela Militar de Aviacion is at Paso Mendoza, about 8 miles northwest of Montevideo This field is rectangular and has an area of about 90 acres, with the long axis running north and south It is well drained and has a comparatively even surface with no obstructions Flying is possible the year round, and landings can be made during wet weather It is available only to flyers of the military school Its altitude above the sea is 164 feet The field is equipped with hangar and repair facilities

Other fields.

Other fields where landings have been made by the military authorities are located at Caracas (within the race track concourse), San Carlos, Barquisimeto, Barinas, San Fernando, and Calabozo

VENEZUELA

Venezuela may be divided in four sections, first, the Guiana highlands covering the territory south and east of the great Orinoco River, second, the great central plains and river valleys of the Orinoco Basin, third, the northeastern chain of the great Andean cordillera, and fourth, the dry, healthful table-lands bordering on Lake Maracaibo There is a peak reaching 16,423 feet and six others over 13,600 feet in the Andean section The climate varies from the tropical heat of the lowlands and plains to the mild temperatures of the plateaus and mountain section The rainy winter season on the plains lasts from April to October In the uplands the seasons are the same but less marked The temperature averages between 50° and 77° F

A decidedly receptive attitude toward commercial aviation has developed recently in Venezuela

Ciudad Bolivar

This field is located on the Orinoco River and is partially improved It can be recognized by the standard 100-foot white circle The field measures 1,968 by 1,968 feet

Maracaibo

This is a large new field which has not been completed and is not marked in any way It is situated just beyond the Santa Maria race track and El Paraiso suburb The field is known as Grano de Oro Seaplanes land in the harbor with ease

Maracay.

At Maracay the military aviation school is conducted for training military flyers As the field is located within the city limits, any accurate map will show its position It is not open to general use and bears no special marks, but there is a wind-direction indicator on the hangar, and it would be easy to recognize it by day No lights are displayed on the field at night, but flood lights are available when needed Meteorological data are not obtainable for the immediate vicinity

VIRGIN ISLANDS

St Thomas Harbor, though small, offers a good spot for amphibians and seaplanes

Landings of small planes have been made at a golf course northwest of the harbor A runway 2,500 feet long could be constructed parallel with a highway, east and west Another 1,000 feet in length could be prepared along a north and south road leading to the bay.

U. S. DEPARTMENT OF COMMERCE
R. P. LAMONT, Secretary
BUREAU OF FOREIGN AND DOMESTIC COMMERCE
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CHAIN-STORE DEVELOPMENTS IN GREAT BRITAIN

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FOREWORD

The interest displayed in this country in the rapid growth of chain distribution gives point to a study of similar developments in other countries Nowhere abroad have branch selling methods been so widely adopted as in Great Britain, and, consequently, in no other country are the problems arising in this connection so nearly comparable with those with which we are familiar in the United States In some respects, notably in the spread of cooperative retailing, British trends have not been paralleled in this country, but on the whole similar methods have been followed with similar results

American practices and experience, particularly in matters of advertising and display, have greatly influenced the expansion of British branch systems, and, in fact, Americans have to a considerable extent actively participated in this expansion To mention two outstanding examples One of the largest British department-store groups is the creation of American management, and an American chain-store company is now operating nearly 400 branches in Great Britain

Many American products, particularly those normally sold through chain stores in this country, are well adapted to this means of distribution in the British market To manufacturers of such articles the branch systems of Great Britain offer opportunities deserving the most serious consideration

For a country where branch merchandising has been as highly developed as in Great Britain, a complete review covering all companies operating such systems, even were such a compilation possible, could not be undertaken within the limits of the present publication. Mr Charles has, therefore, confined his report to a discussion of general conditions, giving specific examples to illustrate developments Lists of leading branch companies are included, and further details concerning them are in most cases available on request to this bureau

The development of chain stores in various foreign countries has been reviewed from time to time in articles in Commerce Reports A list of these articles will be found at the end of this bulletin, and copies of them may be obtained from this bureau on request

WILLIAM L COOPER, *Director,*
Bureau of Foreign and Domestic Commerce

MAY, 1930

CHAIN-STORE DEVELOPMENT IN GREAT BRITAIN

By Ralph S Charles, Assistant Trade Commissioner, London

GENERAL TYPES

There are in England various types of organization which may be considered as "chain" systems, in that they operate through numerous branches In the first place, there are the multiple shops, which in general correspond to the chain stores as understood in the United States Distinct from these, though operating by somewhat the same methods, are the cooperative societies Finally, there are the department-store groups, usually provincial extensions of large stores in London or other principal cities

The development of branch retailing in Great Britain has extended to practically all types of consumers' commodities This development was at first very slow, but since the war it has been especially marked and lately has been increasing at a rapid rate

Most of the successful multiple-shop companies originally started with one shop, often in the Provinces, and by financing new shops out of earnings, gradually became national in character

The first successful multiple-shop organization in Great Britain was founded by Sir Thomas Lipton, who commenced building a chain of retail provision shops in Glasgow in the sixties He concentrated on small, nonperishable, packaged goods, such as tea, spices, and dry foods and sold them on a cash-and-no-delivery basis It was realized that, in quantity buying of certain products, in the centralization of management, and in the establishment of factories for producing many of the goods sold, economies could be effected which were not possible with the average individual retailer

MULTIPLE SHOPS

VISIBLE AND INVISIBLE

There are two types of multiple-shop organizations in Great Britain—the visible and the invisible The former openly advertise the locations of their branches, which in many instances are recognizable by the more or less standardized shop fronts, window displays, and interior layouts The latter type comprises organizations developed by manufacturers or wholesalers that have established their own system of retail shops in order to make up the loss of trade resulting from the failure of independent retailers or from their absorption by other multiple-shop companies These manufacturers and wholesalers, in many cases, have been obliged to take over independent retailers who have become indebted to them, retaining the original owners as managers The identity of such a multiple-shop organization, owned and operated by manufacturers or wholesalers who are known only as such, is concealed—not only because it would be decidedly disadvantageous to have it known that the owners were competing with other retailers who are their customers, but also because of the great reluctance of the public generally to break away from the long-established independent retailer to whose merchandise and service they have become accustomed

Under these conditions a complete survey, including the invisible type of multiple-shop organizations, is impossible Of the visible type it is estimated that there are at the present time nearly 2,200 organizations, operating more than 32,000 branches in 25 lines of trade The following table shows the number of such organizations and branches, classified according to the type of trade, in comparison with the totals of independent shops

NUMBER OF VISIBLE MULTIPLE SHOPS IN GREAT BRITAIN, CLASSIFIED ACCORDING TO TRADES

Line of trade	Multiple shop groups		Independents	Total shops
	Main organizations	Branches		
Athletic outfitters	11	46	1, 199	1, 245
Bakers	175	1, 520	17, 625	19, 145
Booksellers and stationers	20	2, 100	18, 480	20, 580
Boots and shoes	226	3, 600	49, 874	53, 474
Butchers	132	5, 000	37, 070	42, 070
Chemists and druggists	136	2, 420	10, 064	12, 484
Confectioners	178	1, 212	45, 422	46, 634
Dairies	142	1, 290	15, 358	16, 648
Drapers	95	630	33, 605	34, 235
Fishmongers	30	320	8, 070	8, 390
Fruiterers	5	175	26, 290	26, 465
Furniture (house furnishers)	42	370	5, 208	5, 578
Gown shops	5	75	6, 782	6, 857
Grocers	414	6, 017	59, 586	65, 603
Hatters	3	225	2, 415	2, 640
Hosiers	1	40	5, 340	5, 380
Ironmongers and hardware	82	950	19, 268	20, 218
Jewelers	44	290	6, 706	6, 996
Men's furnishings (outfitters)	196	1, 470	5, 904	7, 374
Music sellers, etc	41	220	3, 559	3, 779
Restaurants and caterers	43	650	7, 157	7, 807
Sewing machines	1	900	-------	900
Tobacconists	95	860	31, 905	32, 765
Variety shops (3d and 6d general)	23	560	410	970
Wines and spirits	102	1, 085	6, 298	7, 383
Total	2, 242	32, 025	423, 595	455, 620

BOOT AND SHOE TRADE AN EXAMPLE

The development of multiple-shop organizations in the boot and shoe trade has attained considerable proportions within the last decade. The organizations are of two distinct types—those operated by the manufacturers of shoes as outlets for their production and those operated by organizations that do not manufacture but that buy in the open market

It is estimated that there are approximately 15 groups of manufacturing retailers, with a total of 1,300 branches They may themselves actually produce only a small proportion of the shoes they sell, most of them sell their shoes under a trade name or brand, and in some instances they sell several different brands. In order to reach all classes of consumers they often operate stores in various sections of a city, selling different qualities and brands of shoes according to the purchasing power of the locality

Of the nonmanufacturing organizations, it is estimated that there are no less than 50 groups of retail shoe chains, with approximately 2,000 outlets Several of these groups are important factors in the wholesale trade, absorbing the entire production of many small shoe factories and carrying on an extensive export business with the British colonies

COMBINATIONS OF COMPANIES

The trustification and amalgamation of large capitalistic distributive concerns is continually taking place Through interlocking directorates certain of the larger multiple-shop companies have come closer together and, by pooling their interests, have diminished competition in buying and selling

The Meadow Dairy Co (Ltd), which controls Broughs (Ltd), Pearks Dairies (Ltd), Sherry's Dairy Co (Ltd), and Neale's Tea Stores (Ltd), has made arrangements with the Home & Colonial Stores (Ltd) for an effective combination of their interest In order to facilitate joint management an interchange of directors has been agreed upon The Meadow Dairy Co and Lipton (Ltd) are closely associated, since they are more or less controlled by the great Jurgens margarine interests Together with two or three smaller concerns, the Maypole Dairy Co and the Home & Colonial Stores are very closely associated with Van den Berghs (Ltd), the other great margarine concern Finally, these two groups have been brought even closer together through the complete amalgamation of the Jurgens (Ltd) and the Van den Berghs margarine interests, now known as the Margarine Union (Ltd)

The recently effected combination of Lever Bros (Ltd) and the Margarine Union under the name of Unilever (Ltd), through its associations in various parts of Europe, largely controls the manufacture and distribution of margarine, soap, and other products The fusion of interests between the two concerns is a link in a chain of enterprises of extraordinary extent, comprising, as it does, Anton Jurgens, Van den Berghs, Lever Bros , British Oil & Cake Mills (Ltd), Niger Co (Ltd), African & Eastern Trade Corporation (Ltd), Home & Colonial Stores, Maypole Dairy Co , Meadow Dairy Co , Lipton, Mac Fisheries (Ltd), D & W Gibbs (Ltd), and many other manufacturing, trading, and retail firms

While the tendency for combination and trustification has been emphasized in the food trades, it is also more or less prevalent in the dry-goods, boot and shoe, drug, tobacco, and confectionery trades

CENTRALIZED BUYING

Many multiple-shop organizations maintain central buying departments, since by purchasing in bulk and eliminating the wholesaler or jobber they can secure greater uniformity of products and more advantageous terms They have thus also greater power to control and stabilize selling prices and can effect economies in transporation.

There are, however, several disadvantages in centralized buying, such as the risk of overbuying, misjudging the market, discouraging initiative, etc.

Centralized buying is most successful when applied to staple or standardized merchandise, which does not involve the style factor to any great extent Many organizations have been successful in permitting their branch managers to purchase, outside of staple lines, the types of merchandise which they have found to sell most readily and profitably in the district

LOCATION OF BRANCHES

Most of the larger multiple-shop organizations determine the sites of their branch shops through careful study of the more important elements They use the orthodox method of "clocking" the number and class of people passing likely locations at various times during the day They also analyze a given locality, not only from a competitive point of view but from the prospects of its future expansion It is a usual practice to pay retainer fees to real-estate agents in various parts of the country in order to gain current information of likely sites becoming available through expiration of lease or through new building developments

The multiple-shop system has flourished principally in the great cities with expanding suburban districts, where each new shopping area forms a site for another branch Blocks of stores are continually being built at the intersection of streets in the new residential suburbs, and these are largely acquired by the multiple-shop companies One may enter any shopping area in the suburbs and except to find a branch store of practically every type of multiple-shop organization

BRANCH MANAGERS' RESPONSIBILITIES

The important chain organizations have well-defined policies governing the extent of a branch manager's responsibility and authority The managers are usually responsible for the upkeep and appearance of their stock and shop as well as for the supervision of their staffs They deposit cash receipts at the local branch of the firm's bank several times weekly Some companies which have elaborate systems of stock control require their managers to submit daily reports of stock and sales as well as cash receipts

Those multiple-shop organizations that are national in scope have divided the country into sections and employ district supervisors for inspection purposes These districts may be subdivided into smaller areas, each in charge of an assistant inspector who is responsible to his district supervisor The supervisors regularly inspect the branches in their districts, examining accounts and displays and taking stock They also handle complaints of various sorts and make periodic reports to the head office

PRICE CUTTING

Price cutting appears to be on the increase in Great Britain, and the practice seems to have affected all types of retail distribution Though multiple-shop methods and prices tend toward standardization, there are, nevertheless, several organizations which make it a rule to cut prices in order to attract trade This practice is inclined to lead to the selling of inferior goods

The grocers, particularly, feel this increase in "cutting" and, through the Grocers' Proprietary Articles Association, they are making every effort to combat it This association maintains a list which is altered every month, giving publicity concerning price cutters to the various manufacturers and wholesalers Its influence is gradually being felt With the very rapid growth in turnover of proprietary articles, price maintenance has been correspondingly difficult Concerted action by the Chemists' Proprietary Articles Association, however, has been particularly effective in resisting price cutting

Some multiple-shop companies, on entering a new locality, reduce prices to attract trade, but such a procedure is usually only temporary, and their prices tend to seek the community level

PROPRIETARY MERCHANDISE

The multiple-shop companies and particularly the cooperative societies have been slow to take up proprietary brands Opposition has been strong on the part of the Cooperative Wholesale Society, which insists that its own brands be pushed consistently, since it supplies the retail societies with about half of their stocks But, as national advertising is gradually persuading the public to demand established proprietary articles, the multiple-shop organizations are being compelled to alter their attitude

On the other hand, vigorous protests by retail grocers against the action of manufacturers in supplying to sixpenny bazaars (Woolworths, etc) proprietary goods hitherto distributed mainly or exclusively through the grocery trade, have decided many important manufacturing firms to confine their business within the customary channels The Association of Grocers is continually at odds with manufacturers over this particular question, and it has even been suggested that a "white list" be compiled which would include only those manufacturers and firms who refuse to have dealings with cooperative societies and multiple-shop companies

DELIVERY

Although the elimination of delivery was one of the economies effected by many chain-store companies during their early days, several of the larger firms have taken to the delivery of purchases that exceed a given amount In many instances, however, the question of delivery is left to the discretion of the branch manager The most common means of delivery is the tricycle with a cabinet or basket attached

Owing to the increasingly acute traffic congestion in London and the larger provincial cities the question of remote delivery is receiving considerable attention from department stores Lewis's (Ltd)—by far the largest provincial department-store company—has recently opened special premises in Manchester for warehousing heavy stock The merchandise is sold by sample in the store and delivery is made from the warehouse, thus effecting a considerable economy in space in the actual store Gamages (Ltd), in London, in connection with their new premises in Oxford Street, have established a distribution depot at Cricklewood, 3 miles northwest of London, to which all merchandise that is to be delivered will be sent in bulk and there sorted according to the individual areas in which deliveries have to be made Owing to the shortage and value of space in the center of London and in the larger provincial cities, it is believed that remote delivery will be generally adopted

ADVERTISING METHODS

The chain system of merchandising offers an extensive field for modern advertising methods With the increased competition between multiple firms selling at approximately the same price, the appeal of the product to the public can not be based entirely on price Multiple-shop companies, which during the early stage of development confined their advertising efforts mainly to the circulation of handbills and price lists, now are utilizing a great variety of advertising methods

The majority have recognized the importance of displays and have shown a decided tendency to standardize their shop fronts, window displays, and interior layouts Many companies have definite display policies and maintain special departments at headquarters where "set-ups" are worked out by experts for the benefit of branch managers, who are taught by post or by traveling experts One great difficulty, particularly in London, in the way of making any radical changes in shop fronts is the reluctance of municipal authorities and owners of buildings to allow any alterations that would change the general architectural scheme of a building, even though it be decidedly antiquated In some cases multiple shops employ architects who have endeavored to create, without actual uniformity of detail, a distinctive appearance common to the various branches

In addition to standardized shop fronts and window displays, the companies are employing both national and local newspapers, trade journals, and posters and billboards Direct-mail campaigns are frequently organized, and shop demonstrations featuring special products are common While there is an increasing amount of advertising done in the cinemas, there is none at all over the radio, for the Government controls broadcasting and gives no place to advertising on its programs As regards local press advertising, the multiple-shop companies have come to realize that they must support the local newspaper in every town in which they operate if they expect the town to support them

COSTS AND PROFITS

Distribution costs and profits vary from trade to trade, and the differences are accentuated by the fact that in some trades there is often no wholesale distribution between the manufacturer and the retailer Complex and diverse conditions render the determination of distribution costs particularly difficult

In the boot and shoe trade, as previously mentioned, there are both manufacturers and wholesalers operating their own multiple-shop organizations and selling their products direct to the consumers One of the largest clothing manufacturers follows the same practice, and tobacco, confectionery, and foods are a few of the other products similarly distributed

The Food Council recently examined the trading accounts and balance sheets of 96 private traders (174 shops), 17 limited companies

(37 shops), 18 multiple-shop firms (3,030 shops), and 21 cooperative societies in the retail meat trade for the years 1926–27 The results of this investigation are analyzed in the following table

COSTS AND PROFITS IN BRITISH RETAIL MEAT TRADE

Item	Private traders (less than 8 shops)		Limited companies (less than 8 shops)		Multiple shop firms (8 shops or more)		Cooperative societies	
	Amount per shop	Per cent on sales	Amount per shop	Per cent on sales	Amount per shop	Per cent on sales	Amount per society	Per cent on sales
Average annual sales	£10,431	- -	£17,367	- -	£4 454	-	£1[illegible]2,857	- -
Gross profit	1,976	18.9	3,834	22.1	1,079	24.2	38,591	25.2
Expenses (including management)	1,502	14.4	3,025	17.4	918	20.6	20,780	13.5
Proprietor's management allowance	163	1.6	- -	- -	2	0.04	- -	- -
Net profit	474	4.5	809	4.7	161	3.6	17,811	11.7

Source The Economist (London), Aug 17, 1929

For certain of the concerns considered in the foregoing table, the Food Council has been able to ascertain the average capital and the per cent of net profit, as follows

Item	Private traders	Limited companies	Multiple-shop firms
Firms considered ... number	64	10	12
Shops considered ... do.	132	30	246
Average capital per shop ... pounds sterling	884	1,803	782
Net profit on capital ... per cent	51.1	27.3	28.7

Source The Economist (London), Aug 17, 1929

It is estimated that wages is the principal item of operation costs in the multiple meat shops, constituting about 8 to 10 per cent of sales The net profit on sales probably lies between 5 and 7 per cent In a well-managed meat chain the annual turnover may be anything from £4,000 to £12,000 for a single shop

AVERAGE OPERATING RESULTS OF TWO MULTIPLE-SHOP COMPANIES

Trade	Branches (number)	Annual turnover (average per branch)	Gross profit (average per cent)	Net profit	
				Amount per annum	Per cent of turnover
Cheap groceries and provisions	750	£1[illegible],000	23	£[illegible]85,000	5
Cheap meats	65	11 000	20	28,600	4

Source Economic Journal (London), September, 1929

DEPARTMENT-STORE TRUSTS

Another feature of the multiple-shop development in Great Britain is the tendency of some of the larger department stores in London to take over and operate as branches similar stores in the large provincial cities These stores usually maintain their individual character, so far as the public is concerned, but are controlled by a central organization The development of department-store trusts has been so rapid during the past 10 years and their methods of financing and operation so efficient that they have found it possible to operate their stores on the multiple-shop system They are organized for bulk buying and have simplified distribution and standardized methods of operation

The more important organizations of this type are Debenhams (Ltd), which controls Marshall & Snelgrove (Ltd), Harvey, Nichols & Co (Ltd), Debenham & Freebody, and the Drapery Trust (Ltd) operating some 60 department stores in the Provinces, Harrods (Ltd), which, in addition to its own large organization, operates D H. Evans & Co (Ltd), Kendal, Milne & Co , and Dickins & Jones (Ltd,), John Barker & Co (Ltd), as well as operating their own stores, have acquired the business of Derry & Toms, of Ponting Bros (Ltd), and of Zeeta Co (Ltd), and Selfridge & Co (Ltd), who operate their own store in Oxford Street, control 20 Selfridge Provincial Stores, and William Whitely Ltd) in Queen's Road, and own the John Thrifty (Ltd) and the 21 John Quality shops Lewis's (Ltd) have large department stores in London, Liverpool, Manchester, and Birmingham, all operated under their own name The United Drapery Stores (Ltd), controlled by Henry Glave (Ltd), operate 10 department stores, all of which sell only for cash

PROFITS AND COSTS—ASSOCIATIONS

The average net profit (after payment of debenture interest) for 59 stores of the department type, during the 12 months ended June 30, 1929, was £10,229,145, or 13 2 per cent above the similar figure for the preceding year Of this average, ordinary dividend accounted for £5,732,732, preference dividend for £2,603,521, and reserve, etc , for £1,892,892 Interest at 5 per cent was paid on debenture capital averaging £13,778,161, preference dividends averaged 6 6 per cent, and ordinary dividends 14 4 per cent (14 1 per cent in preceding year)

The average cost percentages on total sales for London, suburban and provincial department stores, as supplied by the Incorporated Association of Retail Distributors, is shown in the following table:

DEPARTMENT-STORE COSTS

[In average percentages of total sales]

Item	Half year ended Feb 1—	
	1914	1922
Total sales (index number)	100 00	249 30
Salaries, wages, and bonuses	9 50	9 72
Advertising and printing	1 36	3 16
Rent, rates, and taxes	2 06	1 43
Transport and postage	1 60	1 73
Depreciation, repairs, etc	89	94
Total expenses	18 67	19 31

Source W R Dunlop Economic Journal (London), September, 1929

Practically all the more important retailers in the dry-goods trade are members of the Incorporated Association of Retail Distributors, which to some extent corresponds to the National Retail Dry Goods Association in the United States The association issues a monthly report on trade, based on returns by members, and to a limited extent exchanges figures on various items of expense, etc , in addition to information and ideas on various phases of retailing

COOPERATIVES

COMPETITION WITH MULTIPLE SHOPS

The radical change in retail and wholesale distribution that has taken place in Great Britain, particularly in the grocery and provision trades, has been expedited by the intense rivalry and keen competition existing between the multiple-shop organizations and the cooperative societies Both groups are highly organized and largely control the sources of supply of many of the commodities they sell

These two types of retail distributors make the same appeal to the public—namely, value for money The only outstanding difference between the two systems, so far as the consuming public is concerned, is the fact that the cooperative societies pay quarterly or semiannual dividends and the multiple-shop organizations, as a rule, do not Many of the large multiple-shop companies in the provision trades, however, have considered paying a bonus or rebate as a further inducement to registered customers This practice, which has been employed rather extensively in the north of England and in a few other parts of the country, usually has taken the form of a discount given in kind to registered customers either quarterly or semiannually Whether such payments to purchasers will become general is uncertain, but the fact that they are being considered by the multiple-shop companies is an indication of the seriousness with which the competition from cooperative societies is regarded

It seems not improbable that competition among the multiple-shop organizations may prompt them to look for special agencies under which they will be able to offer exclusive, branded imported products and thus avoid, in respect of these lines, the close price competition that prevails in domestic merchandise handled more generally

On the other hand, the development of the multiple-shop system has had a decided tendency to stimulate the cooperative movement in Great Britain The exceptionally keen competition and increasing rivalry in the provision trade is becoming intensified, and many of the new cooperative branches are attempting to secure the middle-class custom on which the multiple shops largely depend The extension of credit facilities to members, the development of modern methods of merchandising, smarter shops, more attractive merchandise displays, better shop lighting, and improved service are some of the factors on which the cooperative societies base their appeal for the better-class trade

GROWTH OF COOPERATIVES

The cooperative idea was first successfully put into practice in 1844, when 28 poor flannel weavers in Rochdale, by 2d and 3d subscriptions, secured a capital of £28 and opened a shop to sell flour, butter, sugar, and oatmeal Although there had been several attempts at cooperative selling in other parts of the country, they failed when it came to the question of distributing profits The Rochdale success was due to a different method of dealing with profits They determined that after paying 5 per cent interest on the share capital, all profit should be allotted to the purchasing members in proportion to their purchases and be capitalized in the name of the member entitled until his shares amounted to £5 Thus, each member found it to his advantage to purchase at their store and to introduce new purchasers

The cooperatives have become particularly strong in the north and midlands of England and in Scotland, especially in areas of large industrial employment, as in the textile and coal-mining districts They are much rarer in the less industrialized districts

An analysis of the growth of cooperatives reveals the fact that in general the societies continued to increase steadily to 1903, when they numbered 1,455 Since then they have declined in number, but their membership has rapidly increased The proportion of membership to population in the United Kingdom has expanded from 5 83 per cent in 1911 to 9 52 per cent in 1922 and to about 12 8 per cent in 1928

The following table shows the growth of cooperative retail societies from 1881, by 10-year periods

DEVELOPMENT OF COOPERATIVE RETAIL SOCIETIES IN GREAT BRITAIN

Year	Societies	Members	Average members per society	Year	Societies	Members	Average members per society
1881	971	547, 211	564	1911	1, 403	2, 640, 429	1, 882
1891	1, 307	1, 044, 675	799	1921	1, 352	4, 548, 557	3, 364
1901	1, 438	1, 793, 167	1, 247	1928	1, 245	5, 885, 135	4, 727

It is estimated that the 1,245 societies in 1928 operated more than 12,000 branch shops Trade during the year totaled £333,613,000 and gave a net surplus of £28,071,000 Share capital amounted to £99,328,000, an average of £16 88 per member Stock in trade during the year averaged £19,294,000, with a turnover frequency of 10 85

The English Cooperative Wholesale Society, founded in 1863, is the trading federation of the local cooperative societies This organization has expanded rapidly, and at the end of 1928 its total capitalization, both share and loan, amounted to £57,083,598, with sales for the year of £87,735,282 Comparable figures for the Scottish Cooperative Wholesale Society were £8,212,466 and £15,723,370 and for the Irish Agricultural Wholesale Society, £187,765 and £543,896 These societies operate their own factories, warehouses, ships, and farms, and conduct the bank of the societies

METHODS

Membership is open to all who pay a shilling fee and sign for a £1 share, which can be paid up out of profit Members may for the most part withdraw their shares in cash at par A record of each member's purchases is kept by means of metal tags or otherwise, at the end of each quarter a limited amount of interest, not more than 5 per cent, is paid on shares While some societies pay a proportion of profit to the employees, all societies divide the surplus among the members in proportion to their purchases, nonmembers usually receiving half dividends Thus the members in effect obtain their necessities at cost price.

Cooperative societies are registered under the "Industrial and provident societies act," which constitutes them corporate bodies with limited liability and fixes £200 as the maximum that any member may hold in the share capital

All kinds of goods are stocked by the cooperative societies, though articles of food have first place Some of the societies, in addition to retailing, engage in manufacture (as bread, clothes, boots, millinery, etc), farming or flour milling, usually for their own members but sometimes for sale to other societies They also build cottages to let or to sell to their members, or make loans to members to build or buy cottages In addition, they carry on large philanthropic activities, such as hospitals, schools, and recreational facilities for their members

It has been estimated that the cooperative societies handle about one-twelfth of the total retail trade of Great Britain Their margin of gross profit varies between 22 per cent and 25 per cent of total sales, expenses between 12 per cent and 14 per cent, and net profit or surplus (free of income tax) between 10 per cent and 11 per cent Profits are distributed as dividends among members at the rate of about 2s to 2s 6d in the £1 of purchases The percentage of gross profit is much the same in the cooperative stores as in the department stores, but their expenses are less because of lower overhead

EFFECT OF CHAIN DEVELOPMENT

WHOLESALER, JOBBER, MANUFACTURER

To the wholesaler and jobber the development of the multiple-shop system is a matter of grave concern, as large-scale buying direct from the manufacturer by these organizations has an increasing tendency to eliminate the middleman The position of wholesalers without multiple-shop affiliations has become decidedly precarious In some cases wholesalers have become purchasing agents for multiple-shop organizations or for associations of retailers, and in others they have established multiple-shop organizations of their own Many wholesalers, on the other hand, are doing all they can to assist the private shopkeeper to maintain his individuality, even to the extent of offering financial assistance during difficult periods The intelligent wholesaler, however, has realized that it is only by maximum efficiency on the part of his organization, particularly in the matter of service, that he can hope to maintain his position

When the multiple-shop organizations and cooperative societies were getting started they seemed to offer the manufacturer a good, steady outlet for his products in large quantities He was greatly impressed by their enormous buying power and gladly sold to them, even to the extent in many cases of ignoring the private trader If his products were selling well and repeating satisfactorily, other chains would taken them on until finally the manufacturer's complete output was being distributed by the multiple-shop organizations

However, since the chain stores and cooperatives, through the Cooperative Wholesale Society, have undertaken to manufacture on their own account, they have tended to eliminate their own distribution of the independent manufacturer's goods, particularly the proprietary merchandise On the other hand, many manufacturers, by well-planned national advertising featuring their own names as manufacturers of quality goods, have created a popular demand that has obliged chain stores and cooperatives to stock their products

INDEPENDENT RETAILERS

The development of the multiple-shop system of retailing is intensifying competition and making the conduct of a private business more difficult Independent retailers of the weaker and less efficient type are gradually being eliminated On the other hand, this competition has proved a stimulus to the enterprising trader, where the business is under his direct control and leadership

There will always be a large number of people who demand the highest quality, who want their goods delivered, and who prefer to trade on credit rather than for cash The independent retailer who caters efficiently to this quality market will survive the competition of the more popular organizations

Independent retailers, particularly in the food and drug trades, are meeting the invasion of the multiple-shop system by forming local associations that are linked up all over the country through their respective federations These associations guard against unfair competitive methods or discriminating legislation as affecting the individual trader In most respects they are run along lines almost identical with those used by the multiple-shop companies For example, they cooperate with wholesale firms in buying and advertising, maintain uniform managerial policies, and in some instances use uniform store fronts A more cooperative attitude has been developed, leading to a more liberal exchange of ideas and a more friendly atmosphere These associations are very active in educating and training their members in scientific methods of retailing, such as simple, standardized systems of accounting By cooperative purchasing they are able to secure prices from manufacturers comparable to those paid by the multiple-shop companies and, at the same time, are able to maintain the quality of their goods

Combined buying among local associations of grocers in suitable districts has been reasonably successful in several localities In this connection the Scottish Federation of Grocers and Provision Merchants' Associations, which operates through the Scottish Grocers' Wholesale Association (Ltd) has been notably successful This particular group is engaged in a combined buying scheme that has succeeded in all departments. During the year 1928 the amount paid out in deferred discounts or bonuses to members was 150 per cent above the amount paid out in 1927, and a further 100 per cent increase was anticipated for 1929 The value of the stock carried was less than the average amount of one month's trading, while the value of the stock on hand at the end of the period showed an increase of only 9 per cent, the sales showed an increase of 44 per cent

CONCLUSION

Opinions vary widely as to the ultimate outcome of chain-store development in Great Britain Some authorities hold that, owing to the great economies effected in manufacturing, buying, and selling, multiple-shop companies can deal with supplies in greater bulk, thereby lowering the cost of handling, reducing overhead charges, and eliminating waste Others contend that the essential costs of assembly, warehousing, and distribution of goods into retail channels are so great that the savings of multiple-shop methods are within the reach of every intelligent independent retailer Many also believe that the popularity of the multiple-shop method of distribution will cease when the independent retailer has raised his standard to conform with the pace set by such competition

The multiple shop favors the customers who purchase their goods for cash and who carry their purchases away with them In a general sense they do not receive family orders covering a variety of articles On the other hand, the independent trader offers a friendly, personal service and satisfies the individual tastes of each of his customers, whom he knows and who know him through long and intimate service.

The attitude of the public toward multiple-shop merchandise is, generally speaking, favorable There is no evidence of prejudice, except in the case of members of cooperative societies, any retailer who is enterprising and gives value for money is readily supported. The public likes open display and the facility provided for handling goods and making selection Wage earners, to whom price is of paramount importance, tend to buy from the multiple shops

There is a strong probability that both the multiple shops and the independent stores will continue to operate side by side

SOME LEADING BRITISH BRANCH SYSTEMS

The line of trade, number of branches and, in some cases, the financial results for several leading British branch systems are shown below

	Branches approximate number
Athletic outfitters A G Spalding & Bros (Ltd)	
Bakers	
Zeeta Co (Ltd) (owned by John Barker & Co (Ltd))	40
Pritchards Restaurants (Ltd)	20
Boots and shoes	
J Sears & Co (True-form Boot Co) (Ltd)	722
Freeman, Hardy and Willis (Ltd)	530
Lennards (Ltd)	207
Saxone Shoe Co (Ltd)	104
W Barratt & Co (Ltd)	81
Mansfield Shoe Co (Ltd)	68
Lilley & Skinner (Ltd)	67
H E Randall (Ltd)	54
Carlton Shoe Co (Ltd)	50
Booksellers, news agents and stationers W H Smith & Son (Ltd)	1, 533
Butchers	
Union Cold Storage Co (Ltd)	3, 000
Anglo-Argentine Cold Storage & Produce Co (Ltd)	2, 000
Chemists	
Boots, Cash Chemists (Ltd)	840
Taylor's Trust (Ltd), controls—	
Taylor Drug Co (Ltd)	210
Taylor's Midland (Ltd)	120
Parkes Chemists (Ltd)	42
Mortons (Ltd)	22
Timothy Whites (Ltd)	105
Hodders (Ltd)	40

	Branches, approximate number
Confectioners	
Maynards (Ltd)	230
R S McColl (Ltd)	120
Charles & C Fox (Ltd)	20
Dairies	
United Dairies (Ltd)	650
Express Dairy Co (Ltd)	80
Drapers	
Drapery Trust (Ltd)	60
Selfridge Provincial Stores (Ltd)	20
United Drapery Stores (Ltd)	10
Harrods (Ltd)	4
John Barker & Co (Ltd)	3
Selfridge & Co (Ltd)	2
Fishmongers Mac Fisheries (Ltd)	400
Gown shops	
Morrisons (Ltd)	26
Mentone (Ltd)	16
Style & Mantle	10
Grocers	
Maypole Dairy Co (Ltd)	1, 050
Home & Colonial Stores (Ltd)	1, 050
International Tea Stores	958
Meadow Dairy Co (Ltd)	872
Lipton (Ltd)	600
George J Mason (Ltd)	300
Joseph Burton & Sons (Ltd)	280
Hunters the Teamen (Ltd)	200
World's Stores (Ltd)	199
J Sainsbury (Ltd)	170
David Greig	170
Galdens (Ltd)	160
J Quinn & Sons	150
Walter Wilson (Ltd)	146
W H Cullen (Ltd)	121
Andrew Cochrane (Ltd)	114
Thrift Stores (Ltd)	106
James Duckworth (Ltd)	101
Pegram's Grocery Stores	100
Furniture and furnishings	
Jay's (Ltd)	140
Jackson's Stores (Ltd)	60
Times Furnishing Co	32
Hackney Furnishing Co (Ltd)	20
Fruiterers	
T Walton & Co (Ltd)	60
Direct Produce (Ltd)	47
Amalgamated Fruiterers (Ltd)	37
General stores	
F W Woolworth & Co (Ltd)	375
Marks & Spencer (Ltd)	140
Haberdashers	
Bradleys (Ltd)	103
Jacksons (Ltd)	101
Meakers (Ltd)	45
Swears & Wells (Ltd)	38
Hope Bros (Ltd)	37
Mortimers (Ltd)	35
Horne Bros (Ltd)	23
Austin Reed (Ltd)	18
Hatters Dunn & Co (Ltd)	107
Hosiery. Etam (Ltd)	40
Ironmongers	
J Salmon & Son (Ltd)	70
Hopes (Ltd)	40
Jewelers James Walker (Ltd)	36

	Branches, approximate number
Musical instruments, theater tickets, etc	
Keith, Prowse & Co (Ltd)—	
Branches	45
Agencies	114
Audition salons	91
Restaurants and dairies	
J Lyons & Co (Ltd)	250
A B C Tea Shops	180
Express Dairy Co (Ltd)	80
Slaters & Bodega (Ltd)	72
Fullers (Ltd)	27
Sewing machines Singer Sewing Machine Co (Ltd)	900
Tailors	
Rego Clothiers (Ltd)	82
Prices, Tailors (Ltd)	75
Tobacco	
Finlay & Co (Ltd)	500
Salmon & Gluckstein (Ltd)	150
Wine shops Victoria Wine Co (Ltd)	110

FINANCIAL RESULTS OF CERTAIN BRANCH SYSTEMS

Boots and shoes Freeman, Hardy & Willis (Ltd) Capital, £1,662,500, net profit (December 31, 1929), £270,865, dividends—preferred £45,000, ordinary £225,625 (preference 20 per cent, deferred, 55 per cent)

Butchers Union Cold Storage Co (Ltd) Capital, £12,000,000, net earnings (1928), £825,320, dividends—preferred £720,000 (6, 7, and 10 per cent), ordinary £100,000 (10 per cent)

Chemists

Boots, Cash Chemists (Ltd) Capital, £2 900 000, profit (1929), £892,700, dividends—preferred £96,750 (6 and 7 per cent), ordinary, £435,000 (30¼ per cent)

Taylor Drug Co (Ltd) Capital, £600,000, income (1929), £142,465, dividends—preferred £52,800 (7½ per cent), deferred £32,000 (33⅓ per cent)

Timothy Whites (Ltd) Capital, £1,500,000, profit (1929), £177,278, dividends—preferred £70 898 (7½ per cent), deferred £58,319 (23 per cent)

Confectioners Maynards (Ltd) Capital, £466,100, profit (1929), £115,271, dividends—preferred £3,390 (6 per cent), ordinary £48,700 (12½ per cent)

Dairies United Dairies (Ltd) Issued capital, £5,473,884, net profit (1929), £511,705, dividends—preferred £194,998 (6 per cent), ordinary £222,392 (10 per cent)

Drapers

Selfridge & Co (Ltd) Capital, £3,146,097, net profit (January 31, 1930), £415,339, dividends—preferred £178,000 (6 and 10 per cent), ordinary £150,000 (20 per cent), staff £10,499 (12 per cent)

Gordon Selfridge Trust Capital, £2,000,000, income (1929), £155,130, dividends—preferred £60,000 (6 per cent), ordinary £56,000 (7 per cent)

Selfridge Provincial Stores (Ltd) Capital, £3,300,000, income (1929), £218,122, dividends—ordinary £168,000 (7 per cent), deferred none

Drapery Trust (Ltd) (controlled by Debenham's [Ltd]) Capital, £3,900,000, income (1929), £358,846, dividends—preferred £192,000 (7 per cent), ordinary £150,000 (10 per cent)

United Drapery Stores (Ltd) Capital, £1,000,000, net profit (February 28, 1930), £102,413, dividends, £88,000 (11 per cent)

Harrods (Ltd) Capital, £6,214,848, net profit (January 31, 1930), £834,188; dividends—preferred £300,000 (7½ per cent), ordinary £443,021 (20 per cent)

Grocers

International Tea Co 's Stores (Ltd) Capital, £2,100,000, profit (1929), £643,838, dividends—preferred £71,000 (6 and 7 per cent), ordinary £300,000 (30 per cent)

Meadow Dairy Co (Ltd) and subsidiaries Capital £1,413,625, profits (December 31, 1928), £267,518, dividends—preference £63,750 (7¼ per cent), preferred ordinary £56,362 (30 per cent), ordinary £112,725 (30 per cent)

Grocers —Continued

Maypole Dairy Co (Ltd) Capital, £2,958,333, net profit (January 4, 1930), £554,587, dividends—preferred £17,500 (5 per cent), ordinary £467,708 (20 per cent and 17½ per cent)

John Barker & Co (Ltd) Capital, £1,891,330, net profit (January 31, 1930), £468,865, dividends—preferred £46,175, ordinary £221,266 (20 per cent)

Home and Colonial Stores (Ltd) Capital, £2,400,000, profit (January 4, 1930), £664,182, dividends—preferred £129,000 (6 per cent and 15 per cent), ordinary £395,244 (25 per cent and 15 per cent)

Lipton (Ltd) Capital, £3,250,000, profit (January 4, 1930), £118,377, dividends—preferred £43,000, ordinary £22,250 (10 per cent)

Haberdashers Austin Reed (Ltd) Capital, £450,652, profits (February, 1929), £100,230, dividends—preferred £24,000 (8 per cent), ordinary £22,572 (15 per cent)

Restaurants J Lyons & Co (Ltd) Capital, £8,375,838, profit (March 31, 1929), £908,950, dividends—preferred £395,545 (5, 6, 7, and 8 per cent), ordinary "A" £359,161 (4s 6d per share), ordinary "B" £42,750 (10s 8d per share)

Tobaconists Cope Bros & Co (Ltd) Capital, £375,000, profit (March 31, 1929), £40,748, dividend, £37,500 (12½ per cent)

ARTICLES ON CHAIN-STORE DEVELOPMENT ABROAD, PUBLISHED IN COMMERCE REPORTS

Austria	May 6, 1929
Czechoslovakia	Dec 9, 1929
Denmark	Apr 29, 1929
Egypt	Sept 23, 1929
Finland (cooperatives)	Jan 27, 1930
France	Feb 4, 1929
Germany	May 27, 1929
Italy	Dec 16, 1929
Netherlands	July 29, 1929 Aug 5, 1929
Sweden	Feb 17, 1930
Sweden (cooperatives)	Apr 1, 1929
Switzerland	Sept 9, 1929

Files of Commerce Reports are available in many public and college libraries, or they may be consulted at the district and cooperative offices of the Department of Commerce Copies of the articles listed above may be obtained on request from this bureau

U. S. DEPARTMENT OF COMMERCE
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THE BALANCE OF INTERNATIONAL PAYMENTS OF THE UNITED STATES IN 1929

BY

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Finance and Investment Division

with a foreword by

R P. LAMONT
Secretary of Commerce

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INTRODUCTION

This is the eighth consecutive annual report on the balance of international payments of the United States to be published by the Department of Commerce The first three reports are now out of print, but comparable figures for all seven years will be found in the section entitled " Comparative Balances of Payments, 1922–1929 "

In form these annual surveys are reports on our international commerce from the banking and foreign-exchange standpoints They were undertaken primarily for the benefit of bankers engaged in financing our foreign trade. But foreign trade and the financing of it are quite inseparable, and no clear comprehension of our foreign trade in its broader aspects is possible without these surveys

Our international turnover last year was approximately 1⅔ billions monthly Any analysis of this turnover, such as the present one, raises all the implications of our trade balance, our stupendous underwriting of foreign securities, the war-debt receipts, the problems of our merchant marine, the recent large gold shipments, and our new status in international banking Through what is herein called " promotive " and " detractive " influences no single item is without some bearing upon all the others

Last year we sold to customers abroad over $5,000,000,000 worth of commodities The aggregate profit thereon and the productive employment created by those sales are among the very bases of our national welfare In accordance with sound business practice, we should spare no pains in analyzing the means whereby our customers abroad acquired the exchange with which they paid us for their purchases

Many of the figures herein are necessarily estimates The results, therefore, can not attain to any official standard of accuracy All estimates are subject to revision.

The uses and limitations of a balance of payments are described in the section at the end of this bulletin on Purpose and Methods of Balances of Payments Further information on most phases of the subject can be had from the finance and investment division of the Bureau of Foreign and Domestic Commerce, under whose direction the several annual studies have been prepared Persons interested in the technique of these annual investigations will note, at the end of the bulletin the long list of improvements in methods used this year for the first time

As in the last three surveys, the collection and analysis of data in this survey were under the direction of Dr Ray Ovid Hall, assistant chief of the finance and investment division He is responsible also for the text of the report.

WILLIAM L COOPER, *Director*,
Bureau of Foreign and Domestic Commerce

MAY, 1930

FOREWORD

Changes in our foreign trade in commodities during 1929 were not very significant as regards aggregate values for the year as a whole The excess of exports declined by $196,000,000 from the extremely high figure for 1928 In terms of quantity, both exports and imports made new high records for all time In terms of value, merchandise exports increased by $113,000,000 Merchandise imports increased considerably more, by $309,000,000—a movement which may reflect the unusual excess of the yield of foreign investments over the net export of capital

The most interesting developments in the cash dealings of the United States with foreigners in 1929 had to do with the invisible items The big current invisibles are getting bigger American tourist expenditures abroad established a new high record—as did the yields of investments, both the credit item and the debit item The annual yield of American investments abroad is now estimated at only slightly less than a billion, and the yield of foreign investments in the United States seems to have risen in 1929 to something like $414,000,000, partly due to the high interest rates of the year on the three billions of foreign short-term funds deposited or " put out " in our market

The private debts of United States citizens to foreigners, approximately $7,500,000,000, are now greater than at any other time in American history That means, of course, that in absolute amount we are now the greatest debtor nation (on private account) in the world's history, although on the net balance we are one of the most important creditor nations The increase of foreign funds in the United States during 1929 was apparently slightly above $400,000,000 One looks forward to the possibility of increases of the same order in the years to come, for foreigners can always find among American stocks and bonds a great many unexcelled for security and a great many others unexcelled in their prospects for capital appreciation Each year sees a growth in the number of them listed on foreign stock exchanges Foreign trading on American stock exchanges—purchases and sales—during the year totaled well over $4 000,000,000

The most important event in our foreign dealings during 1929 was the reduction of $561,000,000 in our net capital export For the third time in seven years the year's fluctuation in the United States net export of capital was above half a billion dollars The change of $550,000,000 in 1924 and that of $514,000,000 in 1927 were both increases, and the effect was, of course, very different from the effect of the decrease of 1929 That decrease was no doubt in part responsible for some of the fiscal and foreign-exchange difficulties of certain foreign nations, for some of the world-wide recession of business, and for some of the reduction in our merchandise exports during the latter part of the year and early in 1930, it may also have contributed to the world decline in commodity prices

The gold inflow during the 15 months ended with last October was one major result of this marked decline in our capital exports The net inflow of gold during that period was $307,000,000, equal to about 3 per cent of the total gold stock of the world Delivered in this country, after it had reduced the credit bases and purchasing power of the outside world, the gold apparently served no useful purpose, it merely enhanced our already large stock of "free gold" Certainly any practicable means to lessen the fluctuations in the capital exports of our Nation should receive earnest attention.

Despite the diligence of the department staff in preparing these anunal surveys, the resulting picture shows only a general perspective It is well to repeat the compiler's warning that some of the results are expressed in precise figures "partly for identification" Range estimates—maximum and minimum—would be preferred, were they less clumsy to handle One can best appreciate the magnitudes involved by comparing them one with another Thus, we find that in 1929 the trade balance could have been financed by the gross expenditures of American tourists abroad, that the net yield of investments could have been financed by our underwriting of new foreign securities; that the war-debt payments could have been financed by immigrant remittances, or by our payments for ocean freights, and so on

It is no longer necessary to justify these investigations of our international economy They have gone far toward developing what is really a new branch of economic science If the leading countries of the world, including the United States, had all begun similarly painstaking statements 20 years ago, some of the controversies on international finance in late years might never have arisen

R P Lamont,
Secretary of Commerce

May, 1930

OUR ESTIMATED CASH DEALINGS WITH FOREIGNERS DURING 1929 A CONDENSED BALANCE OF PAYMENTS

[In millions of dollars]

Classes of transactions	Cash claims due from foreigners	Cash claims due to foreigners	Difference
COMMODITY TRANSACTIONS			
Merchandise, silver, etc (adjusted)	5,490	4,756	+73
MISCELLANEOUS INVISIBLE TRANSACTIONS			
Freight (ocean, Great Lakes, and land transit)	154	269	−115
Tourist expenditures, minus payments to American vessels and minus customs declarations of returning tourists, etc	180	745	−565
Interest on all private investments (long term and short term)	976	414	+562
War debt receipts	212	5	+207
Government transactions (except war-debt receipts)	60	152	−92
Immigrant remittances	24	247	−223
Charitable and missionary contributions		49	−49
Other items (insurance, motion picture royalties, cable charges, patents, Canadian electric power, etc)	192	167	+25
Total, commodity and miscellaneous	7,288	6,804	+484
NEW PRIVATE LOANS, INVESTMENTS, AND DEPOSITS			
Net increase in American long term investments abroad (par value)		808	−808
Bond discounts and underwriters' commissions	26		+26
Net cash payments for above			−782
Net increase in long-term foreign investments in the United States	396		+396
Increase in net debt of American banks to foreigners	13		+13
Total, private capital			[1] −373
OTHER BALANCING ITEMS			
Gold shipped or earmarked (net)	245	365	−120
Discrepancy due to inaccurate figures			[2] (9)

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[1] Net export of long term capital, plus or minus short-term capital

[2] Total errors would be much larger, as errors tend to offset one another

ESTIMATED BALANCE OF INTERNATIONAL PAYMENTS OF THE UNITED STATES CALENDAR YEARS 1928 (REVISED) AND 1929 (SUBJECT TO REVISION)

[In millions of dollars]

Classes of international transaction	1928 (revised)			1929		
	Credits	Debits	Balance	Credits	Debits	Balance
COMMODITY TRADE						
Merchandise exports and imports (as reported)	5, 128	4, 091	+1, 037	5, 241	4, 400	+841
Silver	87	68	+19	83	64	+19
Bunker coal and oil sales to foreign vessels	50	11	+39	46	11	+35
Ship chandling, ship repairs, and tonnage dues	45	34	+11	54	37	+17
Sale of vessels	3	3	-------	3	10	−7
Unrecorded parcel-post shipments	20	20	-------	20	20	-------
Adjustments for differences in year-end lags	-------	55	−55	43	-------	+43
Other merchandise adjustments	-------	201	−201	-------	211	−214
Total commodity trade (as adjusted)	5, 333	4, 483	+850	5, 490	4, 756	+734
MISCELLANEOUS INVISIBLE ITEMS						
Freight payments and receipts						
Ocean and Great Lakes traffic	133	167	−34	142	208	−66
Railway earnings on transit shipments	14	40	−26	12	40	−28
Foreign inland freight on United States imports	-------	20	−20	-------	21	−21
Tourist expenditures						
Canada	82	256	−174	91	284	−193
Mexican border	6	32	−26	7	38	−31
Oversea (including West Indies)	75	516	−441	82	517	−435
Ocean-borne passenger traffic (by "substitution") [1]	89	-------	+89	94	-------	+94
Earnings of long-term private investments						
Received from American investments abroad	817	-------	+817	876	-------	+876
Paid to foreign investors in the United States	-------	252	−252	-------	270	−270
Earnings of short term interest and commissions						
Collected from foreigners abroad	76	-------	+76	100	-------	+100
Paid to foreigners abroad	-------	107	−107	-------	144	−144
Immigrant remittances	25	250	−225	24	247	−223
War-debt receipts of United States Treasury						
Interest	160	3	+157	150	5	+145
Principal	50	-------	+50	62	-------	+62
Other United States Government receipts, United States Government payments, and foreign representations here	53	110	−57	60	152	−92
Missionary and charitable contributions, etc	-------	51	−51	-------	49	−49
Motion-picture royalties	70	6	+61	70	6	+64
Insurance transactions	70	70	-------	70	70	-------
Minor miscellaneous items						
Imports of Canadian electric power	-------	3	−3	-------	4	−4
Foreign subscriptions to American press	5	3	+2	5	3	+2
Patents and copyright sales and royalties, legal fees	15	15	-------	15	15	-------
American advertising abroad	5	48	−43	5	50	−45
Cablegrams, radiograms, and telephone services	23	19	+4	27	19	+8
Total of commodity and miscellaneous items	7, 101	6, 451	+650	7, 382	6, 898	+484

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[1] Largely a deduction from American tourist expenditures

ESTIMATED BALANCE OF INTERNATIONAL PAYMENTS OF THE UNITED STATES CALENDAR YEARS 1928 (REVISED) AND 1929—Continued

[In millions of dollars]

Classes of international transaction	1928 (revised)			1929		
	Credits	Debits	Balance	Credits	Debits	Balance
MOVEMENT OF PRIVATE LONG-TERM CAPITAL						
New American investments abroad						
1 Foreign securities publicly offered here (par value)[2]		1,484	−1,484		696	−696
2 Deduct for "refunding to Americans"	238		238	35		+35
3 Deduct for American underwriters' commissions	59		59	15		+15
4 Deduct for securities issued below par	63		63	11		+11
5 Add new "direct investments" abroad by Americans		378	−378		335	−335
6 Add foreign stocks and bonds bought from foreigners in small lots [3]		556	−556		588	−588
Reductions of previous American investments abroad						
7 Bond-redemption payments received from foreigners	260		260	166		+166
8 Sinking-fund payments received from foreigners	101		101	110		+110
9 Resale to foreigners of direct investments	50		50	58		+58
10 Foreign stocks and bonds resold to foreigners [3]	451		+451	442		+442
New foreign investments in the United States						
11 Direct investments	70		70	31		+31
12 American stocks and bonds sold to foreigners [3]	1,503		+1,503	1,537		+1,537
Reductions of previous foreign investments in the United States						
13 Redemption and sinking fund payments to foreigners		70	−70		77	−77
14 Purchase of American properties from foreigners					15	−15
15 American stocks and bonds bought back from foreigners [3]		1,015	−1,015		1,080	−1,080
Total of private, funded capital items	2,795	3,503	[4] −708	2,405	2,791	[4] −386
MOVEMENT OF SHORT TERM CAPITAL						
Net change in international banking accounts, as revealed by questionnaire		226	−226	+13		+13
PURE CASH ITEMS						
Gold	561	169	392	117	292	−175
Changes in ear marked gold	68	188	−120	128	73	+55
United States paper currency						
Total of gold and currency	629	357	272	245	365	−120
Grand total, all items	10,525	10,537	[5] −12	10,045	10,054	[5] −9

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[2] Issued outside our balance-of-payment area Usually American statistics of public offerings include those of all Territories and possessions, although Hawaii, Porto Rico, and Alaska are parts of our customs area

[3] One of four important items whose amounts are extremely uncertain It is supposable that most of the net discrepancy in the entire statement (arising from errors and omissions) results from errors in this group of items Accordingly the original estimates of these items were all altered according to a uniform ratio which would eliminate 60 per cent of the net discrepancy in the entire statement Before the items were thus altered, the net discrepancies for the years 1928 and 1929 were respectively −31 and −23

[4] Estimated "net export of long term private capital"

[5] Discrepancy, due to net errors and omissions Total errors and omissions would probably be much greater, since they tend to offset one another

THE BALANCE OF INTERNATIONAL PAYMENTS OF THE UNITED STATES IN 1929

COMMODITY MOVEMENT

The largest items in our balance of payments are, of course, the exports and imports of merchandise as reported by the Department of Commerce in current trade statistics Besides the figures as thus given, there are several minor items, some known in amount and others requiring estimate, which partake of the nature of commodity movements, for example, the shipment of silver, sales and purchases of bunker fuel, unrecorded parcel-post shipments, and the like

Merchandise Exports and Imports

The totals of our merchandise exports and imports for the calendar year 1929 are reported [1] at $5 241,000,000 and $4,400,124,000 The export total includes, of course, reexports of foreign merchandise since such merchandise was recorded as " general imports " when it entered the country

A comparative and analytical review of the year's merchandise transactions will be found in a pamphlet recently issued by this bureau and entitled "Foreign Trade of the United States in the Calendar Year 1929" [2] The following conclusions are excerpted therefrom

> Exports of merchandise totaled $5,241,000,000, the largest value for any year except those from 1916 to 1920, they were two and two-fifths times greater than the average value for the period 1910–1914, and about one-fifth more than the average for the period 1921–1925 The percentage increase in quantity of exports closely paralleled the advance in their value, since there was little change in the average unit value as compared with 1928 Higher average unit values of heavy iron and steel, copper, and lubricating oil were counterbalanced by lower prices for cotton, motor trucks and busses, and passenger automobiles For the past three successive years the export price index has fluctuated only slightly, standing about 25 per cent higher than in 1913
>
> Imports aggregated $4,000,000,000 during 1929—an increase of $309,000,000 over 1928, this total was only slightly less than for 1926, the record year since 1920 As compared with the average value for the period 1910–1914, imports were two and three-fifths times greater and as compared with the average for 1921–1925 the increase was 27½ per cent The total value of imports during the last few years has been greatly affected by price declines of a number of commodities In 1926 the value of rubber imports reached a total of $506,000,000, whereas in 1929 the value amounted to only $241,000,000, notwithstanding the fact that a much larger quantity was imported, this was owing to a falling off in the average price from 55 to 19 cents per pound As compared with 1928, there were declines in the average import prices not only of rubber but also of a large proportion of other leading commodities, including sugar, coffee, cocoa, hides and skins, and tin In fact, when an adjustment for price

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[1] "Monthly Summary of Foreign Commerce," December, 1929

[2] Trade Information Bulletin No 684, by Grace A Witherow, 54 pages Distribution gratis

changes is made, there appears to have been a gain of approximately 14 per cent in quantity of imports over 1928, in contrast with an increase in value of 7½ per cent As compared with 1926, the quantity increase was even larger

Quarterly Movements of Foreign Trade

Practically the entire gain in the value of exports in 1929 over the preceding year was confined to the first four months of the year, during May, October, November, and December export values fell below those of the same months of 1928 As a result of the influence of large changes in shipments of agricultural products, exports usually reach a low point in the early summer, rise to a peak in the fall, and gradually decline throughout the winter and spring months In 1929 the daily average exports for January, February, and March did not fall below the previous December figure, as is usually the case, but were somewhat higher, owing to a very marked expansion in the exports of finished manufactures While the seasonal expansion during the fall was less pronounced than in most recent years the decline in December was more marked Although the value of exports in the fourth quarter was much smaller than in the corresponding quarter of 1928 it was slightly larger than in that quarter of 1927

Export and Import Records in 1929

The number and character of the commodities which attain maximum levels in both export and import trade during any one year is a significant indicator of the direction of the growth of foreign trade During 1929 many new high records were established, and the character of the commodities which made these records indicates a wide diffusion of foreign trade activity

A special compilation has been made of those articles in foreign trade, the value of which amounted to more than $1,000,000 during 1929 Of 416 such export commodities, 130 reached maximum levels as to either quantity or value, 65 establishing new high records in both respects, 24 showing larger quantities than in any other year but not higher values, and 41 showing higher values but not higher quantities (the quantities for 28 of these 41 are not available)

United States Share in World Trade.

The share of the United States in both world exports and world imports is at present substantially larger than in 1913, although the ratios have declined slightly in recent years In Volume II of the 1929 Commerce Yearbook, pages 768–771, the foreign-trade statistics of 102 countries are combined the total representing at least 95 per cent of world trade For 1913 the United States exports were 12 3 per cent of the total for all countries, in 1921–1925 the ratio was 16 5 per cent and in 1928, 15 6 per cent Our percentage of world imports rose from 8 3 in 1913 to 12 5 in 1921–1925 and was 11 7 in 1928

Notwithstanding the rapid increase in our export trade, the proportion of the national output of movable commodities exported is less than at the beginning of the century and about the same as immediately before the World War This results from the fact that the United States has been able to increase its domestic production very rapidly and has not been compelled to obtain an increasing proportion of its consumption from foreign countries

Fluctuations in United States Merchandise Trade

The "big three" variants in foreign dealings of the United States are merchandise, capital, and gold Its trade balance has seen radical fluctuations in recent years comparable with the wide fluctuations in its net capital export[3] In round millions of dollars, our excess of export rose from 741 in 1914 to 4,016 in 1919, declined to 375 in 1922, rose to 981 in 1924, dropped back to 378 in 1926, rallied again to 1,038 in 1928, and declined to 841 last year

The United States has had no annual excess of merchandise imports since 1893 Indeed, it has had relatively few monthly "deficits" of this kind; most of these have been in the spring, and none has fallen in the last quarter of the year, at least in the present century In recent years our monthly trade balances have usually shrunk to a very few millions in May, June, and July

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[3] See section, "Comparative Balances of Payments, 1923–1929"

Last year our merchandise exports increased by 113 millions, or about 2.2 per cent; our imports increased by 309 millions, or 5.9 per cent, and our excess of exports declined by 196 millions, or 18.9 per cent. The table accounts for these changes by continents and by principal countries. The very large changes in our trade with Germany and with Japan are especially noteworthy.

UNITED STATES MERCHANDISE TRADE BY CONTINENTS AND BY PRINCIPAL COUNTRIES[1] IN 1929, COMPARED WITH 1928

Continents and principal countries	In thousands of dollars						Change in trade position (in millions)
	1928			1929			
	Exports	General imports	Excess of exports	Exports	General imports	Excess of exports	
CONTINENTS							
Europe	2, 374, 914	1, 248, 749	+1, 126, 165	2, 340, 703	1, 332, 667	+1, 008, 036	−118
North America	1, 321, 364	960, 701	+360, 663	1, 395, 232	982, 281	+412, 951	+52
Asia	654, 516	1, 168, 927	−514, 411	643, 420	1, 280, 252	−636, 832	−122
South America	480, 814	569, 408	−88, 594	539, 343	639, 761	−100, 418	−12
Oceania	180, 033	53, 450	+126, 583	192, 022	56, 556	+135, 466	+9
Africa	116, 713	90, 205	+26, 508	130, 538	108, 607	+21, 931	−5
Grand total	5, 128, 354	4, 091, 440	+1, 036, 914	5, 241, 258	4, 400, 124	+841, 134	−196
PRINCIPAL COUNTRIES[1]							
Europe							
Belgium	111, 830	75, 074	36, 756	114, 854	74, 045	40, 809	+4
Denmark	47, 173	3, 938	43, 235	51, 444	4, 563	46, 881	+4
France	240, 692	158, 748	81, 944	265, 656	171, 491	94, 165	+12
Germany	467, 260	222, 130	245, 130	410, 259	254, 674	155, 585	−90
Netherlands	142, 278	83, 604	58, 674	128, 292	83, 853	44, 439	−14
Sweden	57, 322	46, 086	11, 236	58, 703	52, 982	5, 721	−5
United Kingdom	847, 326	348, 540	498, 786	847, 980	329, 767	518, 213	+20
Soviet Russia in Europe	72, 504	13, 949	58, 555	81, 548	21, 520	60, 028	+2
Italy	162, 125	101, 681	60, 444	153, 974	117, 065	36, 909	−24
Spain	86, 613	35, 018	51, 595	82, 121	36, 060	46, 061	−5
North America							
Canada	914, 713	489, 303	425, 410	948, 501	504, 277	444, 224	+19
Mexico	115, 655	124, 514	−8, 859	133, 961	117, 707	16, 254	+25
Cuba	127, 897	202, 842	−74, 945	128, 898	207, 421	−78, 523	−4
Netherland West Indies	13, 622	54, 433	−40, 811	24, 167	64, 589	−40, 422	------ --
South America							
Colombia	8, 596	94, 599	−36, 003	48, 983	103, 525	−54, 542	−19
Argentina	178, 899	99, 438	79, 461	210, 288	117, 585	92, 703	+13
Brazil	100, 104	220, 701	−120, 597	108, 779	207, 686	−98, 907	+22
Chile	40, 351	75, 160	−34, 809	55, 776	102, 025	−46, 249	−11
Venezuela	37, 920	38, 905	−985	45, 325	51, 224	−5, 899	−5
Asia							
British India	53, 694	148, 932	−95, 238	55, 360	149, 332	−93, 972	+1
British Malaya	11, 816	204, 364	−192, 548	14, 641	239, 164	−224, 523	−32
Netherland East Indies	34, 445	86, 142	−51, 697	45, 651	82, 301	−36, 650	+15
Philippine Islands	79, 806	115, 609	−35, 803	85, 592	125, 756	−40, 164	−4
China	137, 661	139, 951	−2, 290	124, 354	166, 235	−41, 881	−39
Japan	288, 159	384, 450	−96, 291	259, 128	431, 873	−172, 745	−76
Other							
Australia	141, 440	31, 577	109, 863	150, 110	31, 939	118, 171	+8
British South Africa	59, 093	9, 181	49, 912	63, 746	9, 656	54, 090	+4

[1] Those having a total import or total export of $50,000,000 or more in 1928 or 1929.

Source: Monthly Summary of Foreign Commerce of the United States, Part II, December, 1929, pp. 2 and 83.

Bunker Coal and Oil Sales to Foreign Vessels

"Bunker coal and oil laden vessels engaged in foreign trade" are not included in the statistics of United States merchandise exports. Statistics are, however, available of our bunker coal sales in foreign trade since 1907 and of our bunker oil sales in foreign trade since 1916. From those statistics, in which sales to foreign and to

American vessels were bulked, estimates of the foreign share were made in the 1926 balance of payments for the first time Since January 1, 1927, the Department of Commerce has separately compiled bunker sales to foreign vessels During 1929 United States sales of bunker coal to foreign vessels totaled 3,341,196 tons, valued at $17,097,000, and our sales of bunker oil to foreign vessels totaled 27,314,797 barrels, valued at $29,200,000

The Merchant Fleet Corporation reports that fuel expenditures in foreign ports during 1929 were for fuel oil $926,517 and for coal $733,678 The vessels for which these expenditures were made included 22 coal burners and 209 oil burners Converted to vessel tonnage, the coal-burning vessels aggregated 122,401 gross tons and the oil burners 1,210,259 gross tons, nine and a fraction per cent of the tonnage of the United States Shipping Board fleet was coal burners and the remainder oil burners

The actual performances of these vessels during 1929 included 1,084 voyages and the aggregate vessel gross tonnage moved was 6,425,389 Applying the percentage distribution of tonnage of coal and oil burners to this tonnage movement during the year, it appears that the coal-burning tonnage was 590,154 gross tons and the oil-burning tonnage 5,835,235 gross tons Applying these figures to the expenditures reported by the Merchant Fleet Corporation, it is found that the expense of the coal-burning movement was approximately $1 25 per ton, while the expense of the oil-burning movement was less than 16 cents per ton This wide variation may be due to the fact that oil-burning vessels frequently bunker for the round voyage, while practically every coal burner is compelled to bunker one or more times abroad Proceeding in the same manner, it is found that privately owned vessels made 10,517 round voyages and had a tonnage movement of 3,936,832 tons of coal burners and 30,516,201 tons of oil burners Application, as above, of the prices per ton moved, indicates that privately owned vessels expended about $4,894,000 for coal and about $4,845,000 for oil [4]

Ship Chandler, Ship Repair, and Tonnage Items

The methods of estimating these items are explained in last year's survey, which carried under these heads a credit of 45 and a debit of 34 millions Similar figures for 1929 were supplied by Virgil C Miller, of the United States Shipping Board Mr Miller concludes that foreign vessels spent in our ports about $53,973,000 and that American vessels spent in foreign ports about $36,999,000 for items other than bunkerage

Sales and Purchases of Vessels.

Since January 1, 1927, the Bureau of Navigation has collected statistics on the number, gross tonnage, and value of documented vessels sold to aliens, built for aliens, and bought from them It does not, however, compile data on the many small undocumented yachts purchased from aliens for unknown sums, these are herein estimated arbitrarily at $300,000 during 1929

The Bureau of Navigation reports that during the past calendar year 79 vessels of 142,807 tons, valued at $3,053,912, were sold to aliens, that 13 vessels of 1,004 tons, valued at $218,849, were built for aliens, and that 52 vessels of 51,598 tons, valued at $9,823,978, were bought from aliens.

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[4] These estimates were supplied by Virgil C Miller, assistant director of the Bureau of Research, United States Shipping Board The 1928 figures were probably about the same

As these values are not included in our statistics of foreign trade, the foregoing transactions involved an invisible export of $3 273,000 and an invisible import of $10,124,000.

Unrecorded Parcel-Post Shipments.

United States postal authorities require export declarations upon only a part of the parcel-post exports These documents are required only when the package is sent by a United States business concern to a foreign business concern and when the value of the package is $25 or more. Only the total value of packages within this very restricted class is included in official merchandise exports The rest has been estimated, in past surveys, on the bases of (1) total weight of packages exported, (2) average value per pound of such packages, as ascertained at the New York post office by opening and appraising the value of a large number of them at random, and (3) average ratio of gift packages, which involve no foreign-exchange transactions and hence would be excluded from the balance of payments.

There are even greater difficulties in estimating the value of unrecorded parcel-post imports Only dutiable packages are recorded in the table of our merchandise imports, and in actual practice a portion of even the dutiable packages are delivered duty free There has been no sampling to estimate their average value per pound, and there is no good way to guess at the portion of gifts

In any case, the difference in value between the unrecorded exports and the unrecorded imports is probably not large It is arbitrarily assumed that in 1929 the two values balanced at $20,000,000

Changed Year-End Lag in Invoice Terms

Our favorable trade balances in November and December, 1928, were $162,000,000 larger than during the same months in 1927 and $135,000,000 larger than during the same months of 1929 Faced by such a wide difference, one can not continue to assume that "the net sum owed abroad or due from abroad at the end of the year, on exports and imports of all kinds, equals the net sum so owed or so due at the beginning of the year" An estimate must be made of the difference between the two year-end lags in payments; for a balance of payments should record only cash claims matured and actually honored during the year

Any estimate of the year-end lag created by the invoice terms of merchandise shipments—if it be a conservative estimate—is better than none at all In attempting to reach a not entirely arbitrary estimate, several of the commodity experts of this bureau were consulted It was found (1) that invoice terms vary widely with the article, with the country of origin or destination, with the customer, and within the trade, and (2) that there are too many articles in United States foreign trade to make feasible any weighted average of "time" granted on either exports or imports It seemed to be the opinion of these experts as a group, however, that the lag is briefer on imports than on exports Much of our imports of coffee, tobacco, and similar products are purchased months before their arrival here, through advances to planters Even in our exports of staple foodstuffs, American houses frequently give invoice credits;

and some of these commodities are held by Americans in foreign warehouses pending sale

Under the circumstances, the compiler arbitrarily assumes that on December 31 of any recent year (1) all transactions for October and previous months have been paid for; (2) that one-fourth of the November exports and one-half of the December exports are " in lag " , and (3) that one-sixth of the November imports and one-third of the December imports are in lag For 1929 this method yields a corrective credit entry of $42,600,000 By adopting these ratios in the revised balances of payments, it was found that the discrepancies due to errors and omissions were notably reduced

The lag just discussed relates primarily to invoice terms, on open book accounts, there is a great deal of this kind of credit in our huge business with Canada It relates also to branch-office shipments, and to open consignments to agents Lags in payment in foreign-trade transactions are created, also, by acceptances and other banking instruments—as measured by the questionnaire to bankers on " International deposits and short-term loans " Such a lag would be created, if, when an American exporter demands spot cash from his foreign customer, the latter (because interest rates are lower here than in his country) arranges, through his own bank abroad, for an American bank to accept and discount a draft, whose proceeds go to the American exporter In some of the border-line cases it is not clear whether the lag results from invoice credits or from international bank credit; but the latter should be counted herein under " International movement of short-term capital."

The lag figure for 1922, in the revised balances of payments in last year's bulletin, was carried as a minus of 13—the result of the mechanical computation explained above That figure should be revised to a plus of 100 because of the " thawing " of frozen export credits granted before the world crisis of 1920–21 There is a sound inductive basis for some such revision, on page 20 of the 1922 survey, which will be explained in detail to interested inquirers Before this revision was made, the discrepancy due to errors and omissions in the 1922 statement was larger than in any of the statements for later years

There should normally be some correspondence between the estimated changed lag in merchandise payments and the changed lag in bankers' acceptances in items 3 and 9 of the table entitled " United States exports and imports of short-term capital," toward the end of this bulletin In 1928 both figures were debits of 55 and 54, respectively In 1929, however, the former is a credit of 42 and the latter a debit of 71 Comparisons of these two figures in future years may disclose a need for a different method of estimating lag

Other Merchandise Adjustments

The surveys for 1924, 1925, and 1926 contained estimates of the sums paid to foreigners for smuggled liquor, as indicated by the recorded exports of liquor by border and other countries A section of the press stressed these estimates to the exclusion of the more important results of the surveys, and certain public officers found ground to object to such publicity Similarly there are objections to publishing " official " estimates of the smuggling of diamonds, narcotics, and other articles, of understatement of imports to evade ad valorem duties, or of loss by bad debts in foreign trade Yet this group of items has an important influence on the balance of payments, its debits are much greater than its credits The best way to meet the situation seems to be to bulk all the estimates in the group By this method the writer concludes that, for the special purpose of a balance of payments, a debit entry should be made in the commodity group of items for 1929 of about $214,000,000 A brief discussion of the separate estimates bulked in that figure follows

Because of bad debts and unfortunate consignments—as well as of pilferage and destruction of goods in transit, unless the goods are fully insured by companies located outside the shipper's country—some part of our exports and imports do not involve cash In certain past years—1920, for example—these various kinds of losses on our exports were very large In general they are believed to affect our exports more than our imports For one thing the exports of the United States are always larger than its imports Relatively, also, the loss on exports is perhaps somewhat larger, despite the facts that (1) our exports of staple commodities are largely sold for spot cash in our produce exchanges, that (2) a large part of our remaining exports are sold against confirmed letters of credit, and that (3) the enormous trade between Canada and the United States is probably subject to no greater risks than the domestic business of either country, as indicated by the uniform premium rates of credit insurance companies operating on both sides of the frontier United States companies and associations selling foreign-credit insurance charge premiums ranging usually from a minimum of seven-eighths of 1 per cent of the invoice to a maximum of nearly 4 per cent, according to the terms of payment, destination of the goods, credit rating of the purchaser, and other circumstances, and they refuse to underwrite extreme risks

Ad valorem duties are levied on only about 16 per cent of our imports, so the understatement of merchandise imports on this account is probably less than has been contended in some quarters A different sort of invisible import arises from the purely overhead expenditures abroad by United States corporations in purchasing raw materials (coffee and tobacco, as examples) This invisible was "discovered" by Assistant Trade Commissioner John T Harding Such expenditures can hardly be allocated to the unit cost (price) of the imports as entered in the consular invoice An invisible export probably arises from similar operations by foreign agents in this country

Estimated payments by United States exporters to foreign consular offices in the United States for consular invoice fees are also included in this debit entry, in some instances these fees are so high as to resemble taxes Consular invoice fees paid by foreigners to the United States Government are entered (as a credit) under "other governmental transactions"

On the other hand, a deduction must be made from the reported import statistics for "home administration of concerns producing abroad important United States imports" This item was suggested by Grosvenor Jones, chief of the finance and investment division of the bureau, and was first entered in the 1926 survey Mr Jones pointed out that a portion of our imports are in a special class because they were produced by American capital abroad Sugar from American plantations in Cuba, newsprint paper from American forests and mills in Canada, petroleum from American oil companies in Mexico, and copper from American mines in Chile illustrate this class of import Many items in this class are on the free list; and there being no incentive to understatement, it is probable that they are generally valued at the market price Not all of this market price goes abroad, however All the profits on the sales, plus the administration expenses of the head offices in the United States, plus reserves, may remain here In this survey it will be assumed that the profits on the sales are included in the estimated income from our foreign investments The share unaccounted for can be estimated only arbitrarily, but it is too important to be ignored The foregoing bulked estimate is net after deducting what seemed to be a reasonable sum on account of this invisible

The exact figures included in the bulked estimate of "other merchandise adjustments," as well as the necessarily arbitrary methods in reaching them, will de disclosed, in strict confidence, to any person constructively interested in the subject The bulked estimates, in revised balances of payments, have not been used to force a balance in any particular year, although, as explained on pages 55 and 56 of the 1928 survey, the preliminary bulked estimates for all years were uniformly reduced by 20 millions, because the "net discrepancies due to errors and omissions' for the seven years showed such a heavy excess of debits

Correction for Dollar-Exchange Fluctuations[5]

A preponderance of United States transactions, whether current or capital, are in dollars Most of our merchandise imports, however, are bought in foreign exchange In a period when dollar exchange is at an average discount of, say, one-eighth of 1 per cent, our approximately 4 billions of imports would cost us about 10,000,000 more than in a year when dollar exchange is at an average premium of ⅛ per cent It is believed (1) that in the case of gold-standard countries, the cost of our imports fluctuates rather closely with dollar-exchange fluctuations, but (2) that in the case of countries on a paper or silver standard, invoice prices are likely to be rather quickly adjusted to sharp fluctuations in exchange

Throughout the first nine or ten months of 1929 dollar exchange was at a high premium, and the year's average of every foreign currency, except the belga, was at a discount Applying the respective discounts to the value of our imports from each of seven gold-standard countries from which we derived 43 5 per cent of our imports, one gets a deduction of $7,689,000 Assuming for the remaining 56 5 per cent of our imports the average discount of the currencies of Italy, Belgium, Argentina, Chile, and India, one finds a further small deduction of $443,000

The corresponding figure for 1928 was considerably less than $1,000,000. The total is considered in the bulked figure for "Other merchandise adjustments"

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[5] The desirability of such a correction was suggested to the compiler by A S Baxendale, London

FREIGHT PAYMENTS AND RECEIPTS

United States statistics of merchandise exports show the value of the exported merchandise free on board a vessel at a seaport or Great Lakes port or set down at the Canadian, Mexican, or Alaskan border. If United States vessels deliver the exported merchandise to a foreign country, their freight charges on the merchandise are an invisible export; if foreign vessels carry it, the freight charges do not enter the United States balance of payments.

Our statistics of merchandise imports show the value of the imported merchandise at the foreign point of shipment, sometimes an inland point. If foreign vessels bring the imported merchandise to our ports, we pay foreigners additional sums for the merchandise; such sums constitute an invisible import. If United States vessels bring the imported merchandise to our ports, these additional sums are paid to Americans and hence are not international transfers.

Oversea and Great Lakes Freight

For all recent fiscal years freight receipts by United States and foreign vessels engaged in carrying our foreign trade have been computed in detail by Virgil C. Miller, assistant director of the Bureau of Research of the United States Shipping Board. A description of the data used by Mr. Miller in these expert computations of "the Nation's freight bill" will be supplied upon request. In 1929, calendar-year figures became available for the first time.

The total freight earned during the year by vessels engaged in carrying United States exports and imports on the oceans and Great Lakes is seen to be about $803,000,000. Of this immense sum, $515,000,000 went to foreign vessels.

UNITED STATES FOREIGN-TRADE FREIGHT EARNED BY UNITED STATES AND BY FOREIGN VESSELS, CALENDAR YEAR 1929[1]

[In thousands of dollars]

Item	On United States imports		On United States exports		Total	
	Earned by Americans	Earned by foreigners	Earned by Americans	Earned by foreigners	Earned by Americans	Earned by foreigners
Ocean freight						
Dry cargoes	$83,470	$185,773	$103,876	$220,736	$187,346	$406,509
Tankers	62,992	20,998	27,862	79,300	90,854	100,298
Total ocean freight	146,462	206,771	131,738	300,036	278,200	506,807
Great Lakes freight	5,691	1,691	4,312	6,743	10,003	8,434
Grand total	152,153	208,462	136,050	306,779	288,203	515,241

[1] All figures subject to revision.

Source: Maritime Records Division, Bureau of Research, United States Shipping Board.

Total freight earned on exports from the United States, by Americon bottoms, during 1929, was $136,050,000. This figure is raised to $142,000,000 for freight earned by American bottoms on cargo carried between foreign ports. This is an invisible export.

Total freight paid to foreign vessels for carrying United States imports during 1929 was $208,462,000. This is an invisible import.

Foreign vessels are excluded from our coastwise trade, so this figure need not be raised.

United States Railway Earnings on Transit Traffic

An enormous volume of Canadian breadstuffs is annually carried in transit by United States railroads from the Great Lakes to the Atlantic coast, as shown in a special table released monthly by the foodstuffs division of this bureau and published annually in Foreign Commerce and Navigation of the United States In 1928, this traffic made up more than 100,000 carloads, or 3,402,000 short tons; in 1929, the volume dropped to 2,791,000 short tons, probably because of poorer crops in Canada and because of the operations of the Canadian wheat pool Most of it moves from Buffalo to New York, but the rates are virtually uniform from Buffalo to each of the five principal Atlantic ports Wheat makes up about three-fourths of the total, barley about a sixth, and wheat flour about one-eleventh Freight charges collected on this traffic by United States railroads (at the ex-Lake export rates) in 1929 totaled about $8,708,000, or about $2,000,000 less than in 1928.

Transit earnings by United States railways on Canadian commodities other than breadstuffs to our Atlantic ports, on all Canadian commodities to our Pacific ports, and on the reverse traffic from all United States seaports to the Canadian border should raise this invisible export to about $12,000,000

Payments to Canadian Railways for Transit Freight.

The per contra item, United States payments to Canadian railways, is still more important[6] The Dominion Bureau of Statistics regularly records the heavy volume of freight on Canadian railways "received from foreign connections destined to foreign points," which in 1929 amounted to about 16,900,000 tons Most of the freight charges on this traffic represent net outlay in the United States balance of payments The deductions consist of freight charges on such United States exports to oversea customers as move across the Canadian frontier to Canadian seaports, in such cases United States export statistics count the value of the goods at the Canadian frontier. Examples of such deductions are charges on exports of (1) foodstuffs and lumber from our Northwest shipped through Vancouver and (2) grain (about 1,300,000 tons) and packing-house products from the Chicago region reshipped from Montreal For all recent years it seems likely that the deductions totaled about 4,000,000 tons.

Most of the remaining 12,900,000 tons of transit traffic in these Canadian statistics consist of American commodities moving in bond from the United States across southern Ontario and back into the United States A much smaller volume moves from the Chicago region, across Canadian territory in bond, and back into the United States to Portland, Me, whence it is exported Another volume, fairly important because it pays a passenger-service rate of $9 per hundredweight from Vancouver to Chicago, is in the form of raw-silk imports from the Far East, in 1929 the charges on this traffic alone totaled about $1,591,000

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[6] The method of computing this per contra item was suggested, in general, by Prof Kenneth W. Taylor, McMaster University, Toronto

It has been estimated that the average length of haul in the Ontario traffic is 300 miles, so about 3,870,000,000 ton-miles were involved. Average earning of all Canadian railways on revenue freight in 1929 was 1.011 cents per ton-mile, but this should be increased to 1.024 cents to include switching charges. At this rate it is believed that the gross invisible import involved in 1929 was not far from $39,600,000.

Payments for Foreign Inland Freight on Our Merchandise Imports

During 1929 we imported $469,027,000 by "land vehicles"—chiefly, of course, from Canada. As our merchandise-import statistics include only the value of the merchandise at the foreign point of origin, an invisible import arises. If the freight from the Canadian point of origin to the border averaged 3 per cent of the value of the goods, the invisible import is $14,000,000. This should be raised to perhaps $21,000,000 to cover foreign inland freight upon water-borne imports from foreign points of origin to foreign seaports, regardless of whether the goods were brought to our shores in American or in foreign vessels.

SURVEY OF CERTAIN INVISIBLE DATA BY COUNTRIES

The following table of certain data, by countries, was compiled from information forwarded by commercial attachés and consular officers. It is the principal base of the estimates of total immigrant remittances and of total foreign long-term investments in the United States. In addition, it serves to answer numerous inquiries received by the finance and investment division of the bureau.

RETURNS FROM QUESTIONNAIRE TO UNITED STATES GOVERNMENT REPRESENTATIVES IN CERTAIN COUNTRIES

[In thousands of dollars]

Selected country or region	Estimated United States tourist expenditures [1] in 1929		Estimated sums received from emigrants in United States [2] in 1929	Estimated long-term investments in United States at end of 1929
	Preliminary	Final		
EUROPE AND LEVANT				
Austria	3,333	2,889	2,153	[3] 5,000
Azores	40	40	400	6,250
Belgium	2,025	1,736	200	75,000
Bulgaria	200	200	750	(4)
Czechoslovakia	1,500	1,286	10,500	4,000
Denmark	1,285	1,101	1,050	15,650
Egypt	5,000	4,286	100	4,000
Estonia	300	300	1,250	(4)
Finland	379	379	1,510	(4)
France	160,000	137,143	1,000	400,000
Germany	52,122	44,676	10,000	[3] 400,000
Greece	1,847	1,583	25,269	25,000
Hungary	1,240	1,063	6,555	(4)
Irish Free State	5,000	4,286	11,679	40,000
Italy	35,505	30,433	46,170	52,600
Latvia	324	324	1,543	(4)
Lithuania	300	300	1,000	300

[1] Includes expenditures of immigrants leaving the United States to visit the homeland. Excludes expenditures on steamships going and coming. Excludes purchases of goods declared by the returned tourist and recorded as "visible" imports.

[2] Deductions are not made for sums brought into the United States by newly arrived immigrants. Figures include sums taken out of the United States by immigrants departing permanently.

[3] Excluding property held by United States Alien Property Custodian.

[4] Negligible.

RETURNS FROM QUESTIONNAIRE TO UNITED STATES GOVERNMENT REPRESENTATIVES IN CERTAIN COUNTRIES—Continued

[In thousands of dollars]

Selected country or region	Estimated United States tourist expenditures in 1929		Estimated sums received from emigrants in United States in 1929	Estimated long term investments in United States at end of 1929
	Preliminary	Final		
EUROPE AND LEVANT—continued				
Madeira Islands	100	100	([4])	([4])
Netherlands	1, 088	933	250	450, 000
Norway	1, 802	1, 545	4, 556	9, 700
Palestine	2, 500	2, 143	2, 000	([4])
Poland	1, 250	1, 071	18, 140	([4])
Portugal	1, 250	1, 071	4, 000	([4])
Rumania	870	870	4, 520	2, 000
Russia	2, 000	1, 714	10, 000	([4])
Spain	1, 900	1, 629	5, 000	20, 000
Sweden	6, 700	5, 743	9, 380	40, 200
Switzerland	12 137	10, 403	1, 250	200, 000
Turkey	950	950	1, 000	([4])
United Kingdom	47, 355	40, 590	7, 825	1, 560, 000
Yugoslavia	355	355	4 472	([4])
Total, Europe and Levant (as selected)	350, 657	301, 142	193, 532	3, 309, 700
FRONTIER COUNTRIES				
Canada	289, 000		13, 000	935, 450
Mexico	46, 000		8, 672	100, 000
Total	335, 000		21, 672	1, 035, 450
WEST INDIES, ETC				
Bahamas	1, 500		400	500
Barbados	175		800	300
Bermuda	7, 435		400	1, 000
Cuba	21, 000		300	60 000
Jamaica	1, 030		400	500
Panama	550		([4])	1, 000
Total, West Indies (as selected)	31, 690		2, 300	63, 300
FAR EAST				
China	3, 270		22, 500	50, 000
India	1, 000		([4])	5, 000
Japan	8, 450		6, 915	50, 000
Total, Far East (as selected)	12, 720		29, 415	105, 000
Grand total, selected countries			246, 919	4, 513, 450

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[4] Negligible

The official authors of the preceding estimates make every reservation as to accuracy Several of them demurred against indulging in such "guesswork," even under instructions The estimates of tourist expenditures are probably more accurate than the other estimates, for their total tallies reasonably well with the total computed from (1) average expenditures ascertained from thousands of questionnaires and (2) actual statistics as to the number of Americans going abroad, by classes In most countries there are official statistics of arrivals, registrations or passport visas of American visitors; and our Foreign Service officers have naturally observed the average length of stay and the spending habits of American visitors Estimates so based are probably accurate enough for purposes of general information.

Immigrant remittances by countries are harder to estimate The most useful indications are (1) estimates of bankers handling most of the remittances, (2) statistics of postal money orders, (3) statistics of the number of immigrants by countries, and (4) estimates by foreign compilers of balances of payments Probably some of the estimates are too high and others too low; at least some of the errors would be offset in the grand total.

Least certain of all are estimates by countries of foreign investments in the United States Some of them are hardly more than guesses Listings of American securities on foreign stock exchanges can be used cautiously for a partial estimate Besides, a great deal is known about foreign branch plants, branch offices, and subsidiaries in the United States In a few countries something is known of the American security holdings of insurance companies, banks, and investment trusts

Reconciliation of Tourist Estimates

The section herein entitled " Total American Tourist Expenditures in Europe," contains a careful estimate with which the total estimates in the table by European and Levantine countries should agree They do agree, at least roughly, the discrepancy between the two estimates being only one-eighth or one-seventh The compiler believes that the former estimate is the more accurate, being based on questionnaires to tourists and on immigration and steamship statistics Accordingly the estimates by countries—as submitted by American consuls and commercial attachés and as shown in the " preliminary " column—have been reduced by one-seventh The reduced figures appear in the " final " column For countries having a preliminary estimate of less than $1,000,000, no reduction was made

The former estimate is the one used in the American balance of payments, but fine exactitude can not be claimed for it. Many readers may prefer to regard the preliminary and final estimates by countries as range estimates If range estimates are used, however, the lower estimates should be somewhat below those in the " final " column, in order to allow for a possible exaggeration in the compiler's computations in the section alluded to

TOURIST TRAFFIC OVER THE CANADIAN BORDER

Tourist traffic between the United States and Canada involves a larger total expenditure than that between any other two countries in the world In 1929, for example, United States visitors to Canada spent about $289,000,000 and Canadians here spent about $91,000,000.

The principal reasons for this great traffic are easily enumerated The densest population of both countries is rather close to the frontier, which is not so true of the frontier between the United States and Mexico Canada has organized and advertised for great tourist migrations from the south, and the highways and railway accommodations across the frontier are extremely good

The total merchandise trade between these two nations is now greater than that between any other two countries in the world and necessitates many business tours across the frontier Each nation maintains numerous branch plants in the other Investments of

United States capital in Canada, indeed, are double those in any other country, and Canada is credited with almost exactly a billion dollars of investments in the United States[7]

The per capita wealth of these two friendly communities, as usually computed, is the highest in the world, and wealth entails leisure to travel Besides, both communities were built up by recent migrations and are perhaps travelers by heredity In automobiles per person, the United States and Canada lead the world

Visitors from the United States find a bit of the Old World in French Canada, and there is the lure of the "north woods" for our sportsmen. Wealthy Canadians go to Florida and California in the winter, and Americans, not all wealthy, go north in the summer—or, indeed, in the winter, for the ice carnivals Canadians come south to our greater cities, with their theaters and museums, or to attend our greater universities Tens of thousands from the United States, on oversea tours, find it convenient to depart or return via Canadian ports Last, the important influence of prohibition in the United States will be doubted by nobody

The 4,508,809 automobiles "imported into Canada for touring purposes" in 1929, if allowed 15 feet of space each, would make a traffic jam reaching more than halfway around the Equator

American Motorists in Canada

Prior to 1927 the Canadian authorities issued car-reentry permits to foreign motorists for 1 day, 1 month, or 6 months Beginning with 1927, these permits were issued for 1 day, 60 days, or 6 months The surprising increase in American motoring over the Canadian border during the past seven years will be noted in the tables below One-day cars and total cars more than quadrupled during that period The increase in total cars during 1929 was about 24 per cent; in 60-day cars, 15 3 per cent One wonders how long such a rapid increase can continue.

FOREIGN CARS IMPORTED INTO CANADA FOR TOURING PURPOSES, 1922–1926

Year	Admitted for 1 day	Admitted for 1 month	Exceeding 1 month and not more than 6 months	Total
1922	818, 374	175, 535	2, 420	996, 329
1923	966, 499	273, 444	1, 954	1, 241, 897
1924	[a] 1, 314, 885	361, 830	2, 344	[a] 1, 679, 059
1925	[a] 1, 515, 035	481, 161	2, 948	[a] 1, 999, 144
1926	1, 521, 181	550, 906	4, 168	2, 076, 255

[a] Revised by Dominion Bureau of Statistics

Source Canadian Department of National Revenue

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[7] Financial Post Business Yearbook, 1930

Foreign Automobiles Imported into Canada for Touring Purposes, by Provinces, During 1929, by Permit Periods

Province	For period not exceeding 24 hours	For period not exceeding 60 days	Exceeding 60 days but not more than 6 months	Total permits
Nova Scotia		1,769	36	1,805
Prince Edward Island		3	2	5
New Brunswick	158,860	37,262	20	196,142
Quebec	203,668	319,942	215	523,825
Ontario	2,922,536	582,128	836	3,505,500
Manitoba	33,333	15,166	15	48,514
Saskatchewan	15,780	5,863	10	21,653
Alberta	23,215	6,350	2	29,567
British Columbia	59,196	122,531	71	181,798
Total	3,416,588	1,091,014	1,207	4,508,809
Total in 1928	2,698,737	945,545	1,173	3,645,455
Total in 1927	2,410,087	740,398	3,315	3,153,800

Source Dominion Bureau of Statistics, Ottawa, Canada

Questionnaire to United States Motorists in Canada

In 1928 the compiler mailed questionnaires to about 3,500 United States motorists who had obtained touring permits from the Canadian authorities The results of the 1,227 returns were published in last year's survey. During 1929 the Canadian customs authorities handed out to United States motorists about 5,000 post-card questionnaires printed by this department This method of distribution yielded a smaller ratio of replies, the results of the 709 returns appear in the table

Results of 1929 (Post-Card) Questionaire to United States Motorists in Canada

Number of returns	Days spent in Canada	Passengers, including infants (and driver)	Expenditures	Miles motored in Canada
-day permits				
First 97 returns	97	306	$1,417	10,497
Next 43 returns	43	138	787	5,077
Total (140 returns)	140	444	2,204	15,574
Average	1	3 17	15 74	111 2
60-day permits				
First 100 [1] returns	691	307	19,295	52,246
Second 100 [1] returns	328	333	6 364	32,775
Third 100 returns	638	311	15,803	54,805
Fourth 100 returns	564	328	13,273	44,880
Fifth 100 returns	701	302	15,953	50,124
Last 69 returns	538	219	11,591	42,706
Total (569 returns)	3,460	1,800	82,279	277,536
Average	6 08	3 17	144.60	487 76

[1] Wide variations in the first two batches of returns resulted from a grouping of 1-day tourists on 60 day permits by a statistical assistant

Expenditures by 60-Day Cars

In 1928, 12 batches of 100 returns each by 60-day permit holders were compiled The average expenditure per car of these 1,200 returns was $156 35 The batch averages showed amazingly narrow deviations from that figure Of the 12 batch averages, 3 were within $2 of the average for all 1,200 returns, 5 were within $10 of that average, and 8 were within $15 of it Again, 5 were above the average for all 1,200 returns and 7 were below it The average of $156.35 was almost certainly within a few dollars of absolute accuracy for 1928 It was planned to accept that average for 1929 but to get a larger sampling of 1-day permit holders, only 27 of these having reported in 1928

Accordingly the 5,000 post-card questionnaires supplied to the Dominion authorities last summer were to be handed to 1-day motorists upon reentering the United States Through misunderstanding, however, most of the post-cards were handed to 60-day motorists, as the table shows The 569 returns from the 60-day cars of 1929 averaged only $144 60 Possibly this lower average should be accepted for 1929, for it seems to be true that each year Americans of lower income become car owners The compiler feels, however, that the customs officials may have followed their instructions better than the results indicate—that many 1-day permit holders reported as 60-day permit holders—for it has been observed that many motorists did not know which kind of permit they had received (Returns by these motorists were thrown out if the uncertainty was clearly revealed) Furthermore, the third and fifth batch of returns acted as if they were trying to establish a mode not far from last year's average Finally, this year's sampling is only about half as great as last year's and is, hence, less reliable In view of these considerations, $150 is adopted as a probable average expenditure of the 60-day cars The total expenditure of the 1 091,014 cars on 60-day permits, therefore, was about $163,652,000

Expenditures by 1-Day and 6-Month Cars.

The results of the 140 returns by 1-day permit holders quite upset our previous estimates The average expenditure of this group of cars is found to be $15 47, whereas in 1928 the Dominion statistician and the present compiler, lacking inductive data, concurred in a probable average of $7 We seem to have visualized the mode cases (most frequently occurring cases) rather accurately, without allowing for the tremendous pull of the rare cases of very high expenditure On the other hand, many of the 1-day permit holders to whom post-cards had been handed, having spent nothing at all in Canada, may have felt that their reports were not desired, though quite willing to cooperate Because of this influence the average is arbitrarily reduced to $13, an adjustment with which the Dominion statistician concurs The total expenditure by the 3,416,588 cars entering Canada during 1929 on 1-day permits is therefore estimated at $44,416 000. The 1928 estimate is raised $16,192,000, or to a total of $35,084,000, but no revision of the estimates of 1-day cars for years prior to 1928 is being made in the present survey

The 1928 questionnaire yielded only 27 returns from 6-month cars Their average expenditure, $560, is adopted for 1929 The total expenditure of the 1,207 cars in this group during 1929 is accordingly estimated at $676,000

Total Expenditures by United States Motorists

In summary, the gross expenditures of the three groups of automobiles during 1929 are estimated as follows

60-day cars	$163, 652, 000
1-day cars	44, 416, 000
6-month cars	676, 000
Total	208, 744, 000

A few millions (about five) should be deducted for merchandise declared, in excess of the $100 exemption, by returning motorists, but as this deduction applies to rail and steamer tourists, as well as to motorists, it will be made in the table summarizing all tourist expenditures

Canadian Motorists in the United States

Article 442 of the tariff act of 1922, as amended, authorizes the admission into the United States of automobiles, motor cycles, etc., on 90-day permits or under 6-month bonds Our customs authorities have kept no record of the number of cars imported under these two arrangements They issue no 24-hour permits, and, by two methods, they avoid issuing any great number of 90-day permits to motorists who plan to spend only a few hours on this side of the border (1) They merely "take up" and hold for a few hours the permit to reenter Canada issued by the Canadian authorities, unless the motorist plans to return by another frontier station, and (2) they issue "yearly permits" to the many Canadians residing so close to the border that they cross it almost daily

The Dominion authorities keep a record of the number of cars "exported for touring purposes" (without regard to periods) Following are the totals of such "exports" for the past 8 years

	Automobiles		Automobiles
1922	100, 810	1926	346, 387
1923	126, 628	1927	495, 929
1924	162, 475	1928	519, 871
1925	223, 077	1929	619, 572

Late in 1928 the Dominion Bureau of Statistics circularized 250 Canadian holders of automobile reentry permits and received 111 returns, which showed an average gross expenditure of $114 77 per car and an average declaration of merchandise (visible import, from the Canadian viewpoint) of $4 38 The average number of persons per car was 3 4 and the average length of stay was 8 8 days

During 1929 that bureau issued a much larger number of questionnaires to motorists who had visited the United States The 1,530 returns thereto are arranged in the following table, in three groups conforming with the permit periods of United States cars admitted to Canada It is repeated, however, that all automobile reentry permits issued by the Dominion run for six months The average expenditures of the three groups in the table can not be compared freely with the averages for United States cars, as many United States motorists to Canada obtain 60-day permits but remain only one day In 1928, of 1,200 returns by 60-day permit-holders from the United States 94 (7 8 per cent) stayed one day only; and the average expenditure of the 94 cars was $15 33 In 1929, of 569 returns by 60-day permit-holders from the United States, 55 (9 7 per cent) stayed one day only, the average expenditure of those 55 cars was $13 67

RESULTS OF 1929 QUESTIONNAIRE TO CANADIAN MOTORISTS IN THE UNITED STATES

Number of returns	Number of days in United States	Number of passengers, including children	Expenditures in United States	Merchandise declared	Number of miles motored in United States	Number of cars which reported miles motored
1 day tourists						
First 100 returns	100	393	$753	$26	4,967	93
Second 100 returns	100	381	633	16	4,935	98
Third 100 returns	100	409	709	27	6,927	94
Next 59 returns	59	224	343	7	3,374	53
Total (359 returns)	359	1,407	2,438	76	20,203	338
Average	1	3 92	6 79	21	60	----------
2 to 60 days						
First 100 returns	529	337	7,959	164	54,673	94
Second 100 returns	492	356	7 381	31	52,166	92
Third 100 returns	680	350	12,618	184	66,019	98
Fourth 100 returns	651	339	10,523	129	81,717	98
Fifth 100 returns	840	358	17,923	50	76,751	97
Sixth 100 returns	876	345	10,682	130	86,076	97
Seventh 100 returns	847	350	10,476	176	88,528	97
Eighth 100 returns	877	390	16,427	215	77,207	99
Ninth 100 returns	1,089	361	12,861	204	150 039	95
Tenth 100 returns	1,132	344	11,465	244	162,796	98
Eleventh 100 returns	968	330	12,715	241	106,158	97
Next 66 returns	543	223	8,467	386	70,060	59
Total (1,166 returns)	9,524	4,083	139,497	2,154	1,072,250	1,121
Average	8 17	3 5	119 64	1 85	957	----------
61 days to 6 months						
5 returns	454	15	10,755	808	46,200	5
Average	90 8	3	2,151	161 60	9,240	----------
Total (1,530 returns)	10,337	5,505	152,690	3,038	1,138,653	1,464
Average	6 76	3 6	99 80	1 99	778	----------

Source Dominion Bureau of Statistics

The table shows that the compiled average expenditure per car by Canadian motorists in the United States in 1929 was $99 80, or considerably less than the average of $114.77 obtained from the very small sampling made in 1928 Either figure is, nevertheless, more than double the average expenditure per car by all American motorists (irrespective of permit periods), which was only $46 29 in 1929 There are sound reasons for the higher average expenditures by Canadian cars·

1. The price of automobiles in Canada being higher, the per capita ownership there is only about half that of the United States Owners are wealthier, as a class, and their questionnaire returns show that there are slightly more passengers per car

2. The proportion of Canadian tourists who remain only one day is seen, from the tables, to be very much smaller This is perhaps because Canada has no large centers of population right on the frontier to compare with Detroit and Buffalo, but prohibition, also is to be considered

On the other hand, Canada has nothing resembling our $100 exemption from import duty upon goods brought in by returning tourists This circumstance tends to restrict Canadian expenditures in the United States.

The Dominion statistician, R. H Coats, suggests that in 1929 many of the Canadian motorists who were still in the United

States, for relatively long periods, did not report Their returns would exert a powerful influence in pulling up the average He suggests an estimated average of $105 per car, which is adopted herein With this average, it is estimated that the passengers of the 619,572 Canadian cars which entered the United States in 1929 spent here a total of $65,055,000 The merchandise declared by Canadians upon reentering their country ($1 99 per car), while a visible import to Canada, is an invisible export to us, few or no export declarations are filled out in this country for such goods

It seems necessary to revise the 1928 estimate of expenditures in the United States by Canadian motorists The average of $115 per car in 1928, is arbitrarily reduced to $110, that average was based on a very small sampling A lower average in 1929 seems probable, as the large increase in the 1929 traffic probably included a greater proportion of comparatively poor people This revision lowers the 1928 estimate by $5,199,000, or to $57,186,000 No revision is being made in estimates for earlier years

Rail and Steamer Tourist Traffic.

Estimates of the amounts involved in the rail and steamer traffic between the United States and Canada are now regularly made by the Dominion Bureau of Statistics The results are shown below; the steamer tourists include those by ocean as well as those by the Great Lakes The ingenious method of making the estimates is explained on page 77 of the Memorandum on International Trade and Balances of Payments, 1913–1927, published by the League of Nations

EXPENDITURES OF UNITED STATES TOURISTS BY RAIL AND STEAMER IN CANADA AND OF CANADIAN TOURISTS BY RAIL AND STEAMER IN THE UNITED STATES

Year	United States tourists in Canada	Canadian tourists in the United States	Year	United States tourists in Canada	Canadian tourists in the United States
1922	$47,416,720	$14,008,326	1926	$79,328 250	$31 174,500
1923	63,368,550	15,666,045	1927	70,265 000	26 265,000
1924	70,625,610	18,268,689	1928	72,521 000	24 635,000
1925	75,089,430	22,753,650	1929[1]	80,000,000	26 000,000

[1] Preliminary

Source Dominion Bureau of Statistics

TOURIST TRAFFIC OVER THE MEXICAN BORDER

Beginning with 1926 these surveys carried very rough estimates of the tourist traffic over the Mexican border In order to obtain closer estimates of this traffic, reports covering the calendar year 1928 were obtained from the six American consular officers near the Mexican border. Their estimates, necessarily rough, follow

TOURIST TRAFFIC OVER MEXICAN BOUNDARY

Consular district	Americans spent in Mexico	Mexicans spent in United States	Consular district	Americans spent in Mexico	Mexicans spent in United States
	Dollars	*Dollars*		*Dollars*	*Dollars*
Agua Prieta	200,250	168,000	Ensenada	25,000,000	250,000
Nogales	700,000	1,000,000	Laredo	3,602,300	2,120,420
Ciudad Juarez	579,250	1,160,550			
Piedras Negras	1,960,000	1,411,220	Total	32,041,800	6 210,190

In commenting upon the large estimate for the Ensenada consular district, Consul E A Wakefield reports that official statistics compiled at the United States immigration office at San Yzidro show more than 5,350,000 persons as having entered Mexico through that border port in 1927, of whom possibly 200,000 were returning citizens of Mexico and visitors from other countries Most of the others were American citizens making brief visits, usually for less than one day The consul regards his estimated average expenditure of $5 per person to be conservative On Sundays, holidays, and special race-track days there are many thousands of American visitors That similar attractions account largely for American tourist traffic into the other border consular districts is made clear by the other reports

No general survey of the border traffic by consular officers was made for 1929[8] There was, however, an important increase in the traffic, the opening of the new automobile highway from Laredo to Monterrey early in 1929 would make for more than a normal increase, according to Commercial Attaché George Wythe Total expenditures by American tourists over the border in 1929 are estimated to have risen to $38,000,000, and the per contra expenditures to $7,000,000

The expenditures of Americans entering Mexico by water are bulked in the section herein on "West Indian and Insular Traffic" The total traffic for 1929 by rail and by steamer, away from the border districts, was estimated at about $8,000,000 by Commercial Attaché Wythe This would raise the estimated Mexican total to $46,000,000

AMERICAN TOURIST EXPENDITURES OVERSEAS[9]

The following is excerpted from last year's survey

Tourists are considered herein to be persons traveling abroad, whether for business or pleasure The relatively few Government officials and missionaries traveling abroad are excluded, since their expenditures are included under "Government expenditures" and "Charitable and missionary contributions"

Prior to the 1927 survey, American tourist expenditures overseas were estimated deductively Estimated averages of expenditures were obtained from a number of steamship and tourist agents or other qualified persons, and these varying estimates were averaged The results were $1,224 in 1922, $1,250 in 1923, $1,300 in 1924, $1,200 in 1925, and $1,250 in 1926 It is now reasonably certain that all these estimates were somewhat too high

Questionnaire Method of Estimating Gross Oversea Expenditures.

In the fall and early winter of 1927 a questionnaire was sent to 2,500 persons who had applied to the Department of State for passports during 1927 The names of these applicants were selected from the files of the passport office in a wholly random way—a few off the top of each alphabetical file The questionnaire called for the total amount spent on the trip (per person), excluding travel and subsistence on American soil, but including steamship passages, passport visas, and purchases abroad It requested the applicant to state the value of the goods upon which he paid duty upon reentering the United States It requested him also to state by which of the three main classes of steamer passage he traveled In order to insure that the total expenditure reported would in every case be for one tourist only, a large number of dubious returns were mailed back for more specific information, and many others were destroyed

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[8] Vice Consul R T Cowan reported an enormous increase in American expenditures at Ciudad Juarez in 1929 American visitors numbered about 1,900,000, their average expenditure he estimated at $10

[9] Excluding those of tourists to the West Indies and the Philippines

The number of returns compiled was 807 Of these, 291 were from third-class (including "tourist" and "student") passengers, 259 were from second-class (including "cabin," "one," and "monoclass") passengers, and 257 were from first-class passengers, including those traveling cabin de luxe or in suites of cabins There were several returns by passengers on cruising vessels, and these were included purposely Passengers departing by one class and returning by another were entered in the class by which they departed

The 1928 Questionnaire

In the fall and winter of 1928 a similar questionnaire was sent to 5,370 passport applicants Only about 1 800 replies were received, but they covered 2,488 persons, as shown in the table

About 3,570 persons did not reply to the questionnaire Of these persons, several hundred probably never received the questionnaire, because of errors or changes of address Others did not reply because they changed their minds and did not go abroad Others did not reply because they were still abroad when the questionnaire was mailed, such tourists, remaining abroad longer, probably spent more than the average Still others, perhaps, harbored the idle fear that there would be some means of checking their customs declarations, but they may not have spent above the average of their class The great majority, presumably refused to reply because they were too busy or too indifferent, at the time, to cooperate, their expenditures should be neither above nor below the average

It is believed that those who did reply to the questionnaire had no motive save that of science and public-spiritedness, and that they reported their expenditures conscientiously If some exaggerated their expenditures out of pride of wealth, others may have understated theirs out of aversion to contemplating their extravagance, or out of pride in being able to travel cheaply because of their experience on previous tours

RESULTS OF 1928 QUESTIONNAIRE TO AMERICAN PASSPORT APPLICANTS

Accommodation at departure	Number of reports	Total expenditure reported [1]	Arithmetical average [2]	Adjusted median [3]	Mode [4]	Deduct average declaration for duty per tourist	Net invisible import [5]
Third class	160	$82,707	$516 92	$492 86	$400-$499	$5 37	$511 55
Tourist and student	609	429,730	705 63	697 22	600-699	9 55	696 08
Second class	285	279,983	982 40	888 34	700-799	15 44	966 96
Cabin and monoclass	588	688,610	1,171 11	1,095 24	1 000-1,099	27 85	1,143 26
First class, cabin de luxe, and cruises	846	1,679,288	1,984 97	1,789 13	[6] 1,500-1,599	108 17	1,876 80
Total	2,488	3,160,318	[7] 1,270 22			47 82	1,222 40

[1] Including passage payments to vessels, whether American or foreign

[2] The arithmetical average is obtained by dividing the total expenditure by the number of tourists reporting

[3] The median is the middle case, being exceeded in size by each of just half of the total number of cases The adjusted median assumes that, if the median is somewhere in the $400-$499 group and if there are 25 cases in that group, they are exactly $4 apart

[4] The mode is the most frequently recurring case It is a relatively unreliable average, although it will not be far from the others, if the sampling is ample

[5] Payments by Americans to American steamships are elsewhere deducted, in the item "Ocean borne passenger traffic"

[6] There are 92 cases in this group, the next largest is the $2,000-$2,099 group, with 75 cases The intervening groups are among the largest

[7] A weighted average would be more significant

Averages Adopted in 1928

So sparse a sampling would be of little value, if there were not reasons to believe that the expenditures of travelers by a given class of steamship passage constitute a "statistical type," and if the results did not confirm the belief It is scientifically certain that a sampling 50 times as great would yield results very similar to those already obtained

In each of the five groups of spenders the arithmetical average was higher than either the median or the mode The reason for this, as regards the first-class group, is clear That group includes a large number of well-to-do persons and a sprinkling of extremely rich persons, the 21 highest spenders reported $129,261, while the 21 lowest reported only about $13,500 Probably no true statistical type in nature would show such a wide deviation The second-class group includes many lavish spenders who would have gone first class if they could have got accommodations during the seasonal rush All classes included, besides those whose vacations had strict time limits, a few who remained for many months Under circumstances like these a perfect statistical curve—in which mode, mean, and median coincide—does not exist even in theory The arithmetical averages are adopted outright, therefore, in all five cases

Averages Adopted in 1929.

The arithmetical averages of gross expenditures in 1928 were larger than in 1927 in all three of the classes The increase in first, second, and third classes were, respectively, $118, $146, and $3 (bulking tourist and student classes with third class and bulking cabin and monoclass with second class) The percentage increases were, respectively, 6 3, 15 2, and 0 45 per cent Much of the gross increase was in goods declared by returning tourists, the increased declarations having been, respectively, about $42, $12, and $2

There were probably further increases in average gross expenditures and in average declarations during 1929, for the first eight or nine months, in which the tourist season falls, was the culmination of long-continued prosperity in the United States As no oversea questionnaire was sent out in 1929, the higher averages of gross expenditures are estimated as follows Third class, $520, tourist and student classes, $720, second class, $1,000, cabin and monoclass, $1,200, and first class, $2,060 Customs declarations during 1929 are estimated, respectively, as $7, $12, $20, $40, and $130

Number of Citizens to Whom Averages Apply

Of the 433,734 United States citizens departed from seaports in the calendar year, 125,532 went on nonpassport tours to the West Indies and Middle America About 10,000 citizens visiting in Canada are also included under the existing classification of "Americans departed from seaports," and the expenditures of these tourists are fully accounted for under "Tourist Traffic Over the Canadian Border" Accordingly 298,202 took the more expensive tours covered by the questionnaire to passport applicants Of these, a few were officials of the Government or missionaries, elsewhere accounted for, so the round figure 297,000 is adopted as the net number to whom the questionnaire averages apply

According to estimates based on Bureau of Immigration statistics, the distribution of these 297,000 tourists, by cabin classes, was as follows:

	Passengers
Third class	64, 597
Tourist and student classes	56, 549
Second class	45, 085
Cabin class and monoclass	62, 014
First class, cabin de luxe, etc	68, 755
Total	297, 000

At the average rates of expenditure by cabin class, it is found that these persons spent $335,443,000 (gross) They declared for duty, as " visible " imports, about $13,451,000, and the non-Canadian share of goods under the $100 exemption appearing in our statistics of merchandise imports was $3,170,000 The invisible import by these 297,000 tourists, therefore, was about $318,822,000

UNITED STATES CITIZENS LEAVING FOR FOREIGN COUNTRIES DURING 1913 TO 1929

Calendar year	Total	Departed via—		Calendar year	Total	Departed via—	
		Seaports	Land ports [1]			Seaports	Land ports [1]
1913	360, 826	277, 159	83, 667	1922	290, 504	278, 331	12, 173
1914	294, 961	247, 321	47, 640	1923	260, 439	250, 126	10, 313
1915	107, 407	87, 557	19, 850	1924	301, 648	292, 072	9, 576
1916	123, 848	90, 456	33, 392	1925	356, 155	344, 185	11, 970
1917	170, 459	125, 570	44, 889	1926	367, 739	356, 555	11, 184
1918	334, 912	301, 356	33, 556	1927	405, 989	392, 149	13, 840
1919	146, 969	118, 332	28, 637	1928	451, 972	437, 111	14, 861
1920	253, 227	227, 195	26, 032	1929	--------	433, 734	--------
1921	280, 080	261, 120	18, 960				

[1] Includes only persons leaving for a stay of a year or more in Canada or Mexico

Source Department of Labor

The Heichen Deductions.

A deduction from our estimate of gross tourist expenditures overseas should be made to cover reduced rates given to tourists in conducted parties, as pointed out by Dr Arthur Heichen in the Bank-Archiv (Berlin) for July 15, 1928 He mentions that tourists in groups are usually regarded in Europe as "purchasing associations," and as such are entitled to reduced rates from hotels, vessels, and even railroads He states that hotels at Cologne, for example, grant a one-third reduction in rates to party travelers

The aggregate of such reductions, the compiler believes, is probably smaller than might first appear If the average reduction on all expenditures in Europe were one-fifth (which seems high), and if one-fourth of our tourists in Europe travel in parties, the average reduction would be 5 per cent, in 1927, then, the estimate of American tourist expenditures in Europe ($349,384,000) should be reduced by about $17,470,000

That this deduction is too large is suggested by the fact that first-class and cabin-de-luxe passengers rarely travel in groups; their average expenditure is roughly double that of the other tourists Furthermore, the deduction from payments to foreign passenger vessels would not be large, for the only concession made to parties by steamship companies, in addition to the usual commission to agents, is free passage for the party conductors In view of these considerations, the Heichen deduction for reduced rates to parties is roughly estimated at $12,000,000 for all overseas countries

Gross tourist expenditures, as computed, include payments for steamship passage—a percentage of which is retained in this country as commissions by agents of steamship companies Information as to the commissions received by steamship agents was obtained from the Merchant Fleet Corporation and from the Trans-Atlantic Passenger Conferences. Commissions differ considerably with the class of steamship passage but are uniform for all lines, they are fixed amounts in dollars for third class and for tourist third, while for the more expensive passages they are percentages of the sums charged In 1928 these commissions totaled about $6,848,000, assuming that although offices of steamship companies sell many berths directly to the tourist and hence deduct no commission, the overhead ratios of these offices roughly equal the rate of commission to agents The figure includes, of course, an allowance for alien-American tourists

The deduction for 1928, under the foregoing two heads, will thus be $19,000,000 That estimate is repeated for 1929

Sailors on Shore Leave.

In 1927, for example, about 17,271 foreign vessels entered American seaports The expenditures of their personnel while in American ports are certainly large, but nothing is known of the average In the absence of information, the total is set at $7,000,000, and the per contra (expenditures of American crews in foreign ports) is set at the same figure Expenditures abroad by the personnel of American naval vessels are included in the foreign pay rolls of the Navy Department, under "Other Government expenditures"

WEST INDIAN AND INSULAR TRAFFIC

From the 433,734 United States citizens departed from seaports in 1929, it is important to subtract the large number going to the West Indies, mostly on winter cruises The average expenditure of such tourists is much smaller than that of our other oversea tourists In 1929 the number of Americans taking these cheaper trips was 125,532, according to the complex computations explained in the 1928 survey

The increase of 3,046 over the previous year is surprising in view of the supposed effects of the stock-market crash The heaviest of this traffic occurs during the first three months of the year, and those effects would not be felt greatly until then The 1929–30 tourist season in Cuba ended with estimated receipts of not more than half those of the previous season, according to Commercial Attaché Frederick Todd

The weighted average expenditures of these tourists, including passage, was estimated at $700 in 1928, on the basis of inquiries addressed to steamship officials and tourist agencies. The same average is assumed for 1929 It indicates a probable total for this traffic of about $87,872,000 The deduction for goods declared by returning tourists appears in the summary table

Insular Tourist Traffic

Included among the 433,734 citizens departed from seaports and destined to foreign countries in the calendar year 1928—as compiled by the Department of Labor—are around 8,000 citizens who sailed from Hawaii, Porto Rico, and Alaska The Department of Labor compiles separately statistics of passenger traffic between (1) continental United States, Hawaii, Porto Rico, and Alaska, and (2) between continental United States, Philippines, Virgin Islands, Guam, Samoa, and Canal Zone This delimitation of area corresponds with that of the Department of Commerce in compiling statistics of foreign trade, visible and invisible

During the fiscal year 1928–29 United States citizens arriving in the Philippines from residences within our balance-of-payments area numbered 2,695, according to the annual report of the Commissioner General of Immigration, page 177 The same table shows 20,490 residents of the Philippine Islands departing to our customs areas. We have, thus, a notable credit balance in our tourist traffic with the Philippines If the average expenditure is $500,[10] the credit is $10,245,000 and the debit $1,348,000 These estimates are assumed to apply also to the calendar year.

The traffic between Porto Rico and the Virgin Islands and between Hawaii and Guam and Samoa is extremely small, involves a smaller average expenditure, and is largely offsetting, so it is ignored

Department of State Passport Statistics.

Highly informative statistics on our oversea tourists were recently released by the passport division of the Department of State Passport applications filed during the calendar year 1929 numbered only about 196,900, although the Department of Labor reported 433,734 "citizens departed from seaports" The discrepancy is easily explained, however Several citizens may travel on one passport, a passport may be used for several trips during the two years for which it is valid, and no passport is necessary for Canada, Cuba, Bahamas, Bermuda, and several other near-by areas.

No less than 44 per cent of the passport applications were filed by naturalized Americans, and 35 per cent of the applicants stated that "family affairs" were the "object of travel" Among other objects of travel, "commercial business" accounted for 8 per cent of the applications, and education 7 per cent

"A few people do all the traveling" Of the total applicants, 37 per cent had received passports in earlier years About 30 per cent of the total applicants reside in New York City More than 70 per cent of the applicants reside in New York, Pennsylvania, New Jersey, and Massachusetts About 88 per cent were destined to western or eastern Europe

Americans Residing Abroad

The following is excerpted from last year's survey

> Figures from 330 American consular offices, reported at various times during the past two years, indicate that there are about 392,668 Americans residing abroad, according to the Department of State This total includes only those "whose residence abroad has a permanent or semipermanent character and therefore excludes tourists and all others whose sojourn abroad is considered to be only transitory" Exact figures were not obtainable, but the Department of State regards the above total "as a fairly accurate world census of Americans living abroad" More exact data would be available at times from foreign censuses of populations
>
> The statement below breaks down this total into grand divisions and into a few of the countries having the largest number of American residents It does not include the large numbers of Americans in the Philippines, Canal Zone, and other possessions—which, being outside our balance-of-payments area, are "foreign" countries from the present viewpoint

Canada and Newfoundland	234, 147
Europe (France, 25,860, United Kingdom, 11,717, Italy 10,000)	77, 063
Asia (China, 12,233, India, 3,723, Japanese Empire, 3,163)	24, 119
West Indies and Bermuda (Cuba, 9,234)	19, 579
Mexico and Central America (Mexico, 14,607)	19, 614
South America (Argentina, 3,619, Venezuela, 2,215, Brazil, 2,153)	12, 136
Africa (Union of South Africa, 1,125)	3, 673
Australasia and Oceania	2, 337
Total	392, 668

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[10] Probably most of these travelers are on business trips, who earn at their destinations much of what they spend This estimated low average expenditure is assumed to exclude such earnings

The Bureau of Immigration regularly compiles statistics on the number of American citizens "permanently departed." During the 10-year period ended January 30, 1927, the total thus departed was 454,012, of whom 397,358 were native-born Americans. These statistics are based on informal declarations of intention made at the time the citizen sails or crosses the frontier and hence are not very accurate. Most of the native-born citizens went to Canada.

There is no sound basis for an estimate of the amount of income earned in the United States and spent abroad by such persons. Most of them are gainfully employed abroad and may even send portions of their foreign income back to the United States. In the case of construction engineers, the income thus sent back is so large as to be estimated under "Yield of American investments abroad." Others, employed by the United States Government or by American missionary, charitable, and scientific organizations, spend American funds separately computed herein.

The arbitrary net estimate for 1929 is $33,000,000. This estimate seeks to approximate total expenditures, made mainly in Europe, by three classes of Americans: (1) Wealthy persons living in luxury or retirement, principally in France, England, and Italy, (2) American heiresses married to foreigners, and (3) students.

Classification of Aliens Admitted.[11]

In 1929 aliens legally admitted to the United States numbered 473,727. (See table of numbers of aliens admitted by classes under the immigration act of 1924.) These persons figure as four entirely unlike classes. The first three classes create credits, and the fourth class creates debits in our balance of payments.

1. Immigrants coming here to settle and bringing at least the minimum funds required by law, as discussed under "Immigrant remittances."

2. Foreign government officials, employees, and their families, whose expenditures in this country are included under "Other Government transactions."

3. Foreigners touring the United States.

4. Aliens returning to the United States, usually after visiting the "old country." They spent abroad funds obtained in the United States and are herein styled "Alien-American" tourists. It is deemed convenient to classify such expenditures under the present heading rather than under "Immigrant remittances."

ALIENS ADMITTED INTO THE UNITED STATES DURING RECENT CALENDAR YEARS, BY CLASSES, UNDER THE IMMIGRATION ACT OF 1924

Class	1926	1927	1928	1929
All classes, total	540,502	520,895	487,682	473,727
Nonimmigrants, total	94,302	97,726	99,194	103,705
1 Government officials, their families, attendants, servants, and employees	5,581	6,026	6,274	6,453
2 Temporary visitors				
For business	22,420	11,081	64,562	67,203
For pleasure	36,798	51,628		
3 In continuous transit through the United States	28,130	27,713	26,791	28,153
4 To carry on trade under existing treaty (mostly Chinese)	1,373	1,278	1,567	1,596

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[11] In compiling these sections, valuable advice and extensive assistance were obtained from J. J. Kunna, chief of the statistical division, Bureau of Immigration.

ALIENS ADMITTED INTO THE UNITED STATES DURING RECENT CALENDAR YEARS, BY CLASSES, UNDER THE IMMIGRATION ACT OF 1924—Continued

	Class	1926	1927	1928	1929
	Nonquota immigrants, total	284, 409	270, 292	240, 540	223, 577
5	Wives, husbands, and children of United States citizens [1]	14, 127	23 719	28, 604	33, 518
6	Returning residents	92 296	96, 737	99 139	102, 627
7	Natives of nonquota countries [2]	169, 411	142, 649	108, 883	83, 684
8	Wives and children of natives of nonquota countries [1]	1, 150	953	603	489
9	Ministers of religious denominations and their wives and children	1, 423	1, 545	1, 091	1, 051
10	Professors of colleges, academies, seminaries, or universities, and their wives and children	211	194	186	209
11	Students	1 823	1, 856	1, 888	1, 876
12	Spanish subjects admitted to Porto Rico	9	38	46	26
13	Veterans of the World War and their wives and children	3, 959	2, 601		
14	American Indians born in Canada			19	4
15	Women who had been citizens of the United States			81	93
16	Quota immigrants (charged to quota), total	161, 791	152, 877	147, 948	146, 445

[1] Wives, and unmarried minors born in quota countries

[2] Aliens born in Canada, Newfoundland, Mexico, Cuba, Dominican Republic, Haiti, Canal Zone, or any independent country of Central or South America To avoid formalities, a few students, business men and other tourists from these countries enter as nonquota immigrants

Source Bureau of Immigration, Department of Labor

Alien-American Tourist Expenditures Abroad

Class 6 in the table shows that 102,627 aliens returned here in 1929 to resume residence after a visit abroad There is no need to deduct the approximately 2,600 Canadians and Mexicans included in that figure The expenditures of these persons are separately estimated, it is true, but a large and unknown number of persons classified as "natives of nonquota countries" (or otherwise) are really "returning residents"

A fairly good check of the number of returning residents is the 106,370 reentry permits issued by the Department of Labor during 1929 The discrepancy arises chiefly from the facts that reentry permits are sometimes issued to persons in other than class 6, that a resident may obtain a reentry permit and then not go abroad after all, or reenter in the year after it is issued, and that the alien may reenter on a foreign passport A reentry permit costs $3, while a foreign passport with an American visa would usually cost several times as much

The average expenditure of these alien-American tourists is certainly less than that of our citizen tourists Many of them live with relatives abroad as guests Most of them came here as laborers and have not yet reached the higher levels of prosperity Indeed, it was observed in scrutinizing the returns to the questionnaire to citizen tourists, that an unusual proportion of the naturalized citizens traveled by third class The average expenditure of these 102,627 alien-American tourists is estimated at $880, or, roughly, only two-thirds of the citizen-tourist figure Their total expenditures abroad for 1929 would thus be estimated at about $90,312,000

About 7,000 of these returning residents had visited the West Indies and had probably spent, on the average, about half as much as the others, so the estimated total is reduced to $87,000,000, and the 1928 estimate is reduced to $85,000,000

Foreign Tourists in the United States from Overseas.

Foreign tourists in the United States are shown in the table under classes 1 to 4 and class 11 Class 1, however, is thrown out, since the expenditures of foreign government officials in this country are counted under " Representation expenses " Class 3 must be included, but at a different average rate of expenditure per tourist, it is estimated that these transit tourists spent in the United States only $100 each, or $2,845,000

Even classes 2, 4, and 11 can not be accepted in bulk as bona fide foreign tourists Of the 70,675 persons in these groups, about 9 per cent (during the fiscal year, at least), or about 6,300 were Canadians and Mexicans, whose expenditures are included in the figures for tourist traffic over our borders Of the remaining persons, it is estimated that 3,000 earned here the income they spent here After these two deductions, the net number of foreign tourists in classes 2, 4, and 11 is 61,375 Their average expenditure in the United States is assumed to be $1,000—somewhat more, counting steamer passage, than the average expenditure of American tourists overseas, because of higher living costs here Including class 3, therefore, the total expenditure in the United States during 1928 by foreign tourists from overseas is estimated at $64,220,000

Foreign income spent in the United States by foreigners permanently residing in the United States is believed to be negligible

SUMMARY OF ESTIMATED TOURIST EXPENDITURES, LAST THREE CALENDAR YEARS

[In thousands of dollars]

Class of tourist	1927	1928 revised	1929
FOREIGN SERVICES TO AMERICAN TOURISTS			
Canada			
Motorists	134,525	183,576	208,744
Rail and steamer tourists	70,265	72,521	80,000
Mexican border	32,041	32,041	38,000
Citizen tourists overseas			
West Indies and Middle America	69,310	85,740	87,872
Europe and rest of world	300,014	336,115	335,443
Citizens permanently residing abroad	30,000	32,000	33,000
Alien-American tourists (immigrants visiting fatherland)	85,000	85,000	87,000
Citizens visiting insular possessions	1,300	1,326	1,348
American sailors on shore leave abroad	7,000	7,000	7,000
Gross total	729,455	835,319	878,407
Deduct merchandise declared	16,988	17,990	20,850
Deduct commissions of steamship agencies, etc	16,600	19,000	19,000
Total deductions	33,588	36,990	39,850
Net total	695,867	798,329	838,557
AMERICAN SERVICES TO FOREIGN VISITORS			
Canada			
Motorists	57,000	57,186	65,055
Rail and steamer visitors	26,265	24,633	26,000
Mexican border	6,210	6,210	7,000
Foreign visitors from overseas	57,614	58,696	64,220
Visitors from insular possessions	9,400	9,427	10,245
Foreign sailors on shore leave here	7,000	7,000	7,000
Total	163,489	163,152	179,520

Total American Tourist Expenditures in Europe.

It is estimated that the principal destinations of United States citizens departed from seaports during 1929 were about as follows

	Number of tourists
Europe and Levant	282, 702
West Indies and Central America	125, 532
Far East	12, 000
Canada	[12] 10, 000
South America	3, 500
Africa	Negligible
Total	433, 734

The estimate of 282,702 citizen tourists to Europe is accepted without any refinement for the negligible percentage of United States Government officials and persons who subsequently visited places outside Europe and the countries of the Mediterranean Basin That number is 95 18 per cent of the round figure, 297,000, adopted for "overseas tourist, Europe, and rest of the world," whose gross expenditures are estimated at $335,443,000, so the European share was probably about $319,234,000

Of the 102,627 "alien-American" tourists (immigrants visiting the homeland), about 84 04 per cent visited Europe and the Levant This ratio is derived from fiscal-year figures, however At $880 each, these 86,248 persons spent about $75,898,000

Of the $33,000,000 estimated to have been spent during 1929 by United States citizens (mostly wealthy) residing abroad permanently, perhaps $28,000,000 was spent in Europe This pure guesswork corresponds to 5,600 persons—men, women, and children—spending $5,000 each

Omitting expenditures by sailors on shore leave, Europe's share in America's tourist expenditures (gross) during 1929 is estimated at $423,132,000

Average steamship passages to or from Europe on the five cabin classes were, respectively, about $94, $113, $143, $160, and $260 At these rates the deduction for steamship passages inbound and outbound is about $88,931,000 for citizen tourists. Passage payments by the 86,248 alien-American tourists visiting Europe in 1929 were probably not far from $21,907,000, assuming that of 10 of these passengers, 6 went by third class, 2 by second class, 1 by cabin class, and 1 by first class. Expenditures "on European soil" in 1929 were probably about $312,294,000 Some of these expenditures were for goods declared by returning tourists, but such declarations are not very large They reduce our invisible import, through American tourist expenditures "on European soil" in 1929, to about $302,000,000

Most of the passage payments went to European vessels, however. During the fiscal year, 91 28 per cent of all passengers leaving the United States for Europe went on European vessels [13] In addition, European vessels carried large numbers of American tourists to the West Indies and other parts of the world

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[12] Only this small part of the total departures to Canada by water is included in Bureau of Immigration figures of departures from seaports, according to J J Kunna, of that bureau

[13] U S Shipping Board, Report B R No 157, p 5

OCEAN-BORNE PASSENGER TRAFFIC

The total collected yearly by foreign and American vessels as passage payments by travelers to and from the United States is probably above $250,000,000. Part of this amount was paid by foreigners to foreign vessels and part was paid by Americans to American vessels, such sums do not properly enter the United States balance of payments. Moreover, the estimates of tourist expenditures include passage payments, whether to American or to foreign vessels. Large deductions are therefore necessary.

On the other hand, American vessels collect large sums from foreign passengers, these are invisible exports and must be somehow estimated. The complex method of providing for both the entry and the deduction—by " substitution "—is explained in last year's survey. Excluding the noncontiguous intercoastal, and Great Lakes traffic, the number of passengers carried (inbound and outbound) by vessels of all flags, during the fiscal year 1929 was 1,861,347, or 6.1 per cent larger than in the previous fiscal year. This suggests that the 1929 figure should be about $94,000,000, a credit.

On January 1, 1930, the Bureau of Immigration began to collect statistics of arrivals and departures of citizens and aliens, by flags of carriers, by ocean lanes and by cabin classes. Those statistics will obviate the uncertain, if ingenious, method of " substitution " in computing this important item.

PRIVATE LONG-TERM AMERICAN INVESTMENTS ABROAD

A total of our private investments abroad, estimated by competent persons, is of itself interesting and valuable information, but it figures in a balance-of-payments survey only as a basis for estimating the total annual yield upon foreign investments. Fortunately a billion-dollar error in the estimated total of principal—and such a margin of error must be admitted—would create an error of only about $60,000,000 in the annual yield.

Estimates for the End of 1929

About a year ago the finance and investment division began a world-wide census of American " direct investments " abroad, one of the blind spots in this field. Figures have already been obtained from over 2,000 American corporations as to their foreign branch plants, mineral resources, plantations, etc.; and the whole investigation will be completed in time for next year's survey. There will be available also, in handbook form, the division's annual schedules of foreign securities publicly offered in the United States from 1914 to 1929, inclusive, as finally revised. Besides, more accurate comparative balances of payments from 1921 to date will then be available. Next year's bulletin will therefore contain more reliable figures on American investments abroad than have heretofore been obtainable.

In the interim it will be necessary to use the cumulative estimates brought forward from year to year in these bulletins. Only range estimates will be given, since this method of presentation will emphasize the margins of errors. The present compiler estimates, from the data at hand, that on January 1, 1930, the total of private American investments abroad (excluding war debts to the United States Treasary and excluding the short-term loans to foreigners shown in the section, International Movement of Short-Term Capital) lies between the range estimates below.

	Millions of dollars
Latin America	5,051 to 5,807
Europe	3,970 to 4,564
Canada and Newfoundland	3,155 to 3,627
Asia, Australia, and rest of the world	1,190 to 1,368
Total	13,366 to 15,366

The foregoing figures are assumed to consist of nominal capital in the case of securities and of original outlay or of present capitalized earning power in the case of investments in physical properties. They exclude investments in such of the United States Territories and possessions as are in our balance-of-payments area

Certain economists whose opinions merit respect incline still to the higher range of estimates [14] It is known, however, that not all these economists give due weight to the "backwash," or "attrition," to which our acquisitions of foreign securities during any past year have been subjected throughout every subsequent year Around $8 000,000,000 of our foreign investments are in bonds, bonds mature, or are "called" before maturity, and a volume of them is quietly retired every month by sinking-fund operations At the same time foreigners buy back from us from time to time small or large blocks of our foreign securities

Total Yield of Our Foreign Investments Often Exaggerated

It is believed that most private estimates of the yield of our foreign investments have been too high Hearing a great deal about the high dividends of foreign bonds, one is likely to suppose that their typical interest rate is 7 or 7½ per cent Indeed, 7 per cent is, in one sense, the "typical" interest rate on foreign securities publicly offered here, for in several recent years Americans have underwritten more 7's than securities of any other rate

On the other hand, during the past six years, Americans have underwritten nearly 2 billions of foreign bonds paying 5 per cent or less, including about a half billion of 4's (mostly Canadian) Again, the "backwash" is especially likely to reduce our holdings of high-rate bonds, and much of them, acquired several years ago, have been refunded at lower rates The weighted-average interest rates of foreign securities underwritten here is about a flat 6 per cent, as shown in last year's survey The average yield of these investments is somewhat higher, because of bond discounts, but the estimated principal of our investments abroad consists of par values, for the most part Direct investments are estimated to have yielded 7 per cent

The Kindersley report of 1928 on British oversea investments computed yields averaging 7 49 per cent on total investments, which included enormously profitable tea and rubber plantations Our direct investments, include, besides some very productive holdings, a half billion or so, in sugar production in the West Indies, which had a bad year, huge holdings of undeveloped petroleum, mineral, and forest lands; and an accumulation of quite worthless mines in Mexico and Canada

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[14] Dr Max Winkler's estimate for January 1, 1930, is $16,604,052,000

Yield of Foreign Investments in 1929.

The compiler's estimate for the total yield during 1929 of long-term American investments abroad is $876,000,000. This includes an estimated half-year's dividend on half of the net increase in these investments during the year, and it includes $5,000,000 for estimated profits from construction abroad by American engineering houses, an item often indistinguishable from yield on investment.

YIELD OF FOREIGN LONG-TERM INVESTMENTS IN THE UNITED STATES

No census of foreign long-term capital in the United States has ever been taken and estimates of its total vary widely The Commissioner of Internal Revenue reports that no estimate can be derived from income-tax statistics Perhaps the best move in building an estimate of total foreign investments in the United States would be to circularize the registrars of American corporations This was done in 1914 by Dow Jones & Co , but its report covered only 114 corporations

In 1927 and again in 1929 American consuls and commercial attachés were instructed to forward estimates of American investment holdings in the territories to which they were assigned The results for 1929 appear in a foregoing section entitled "Survey of Certain Invisible Data by Countries," and there is a lengthy discussion of the subject in the 1927 issue of the series

Total Foreign Long-Term Investments in the United States.

As the table shows, England is the principal investor in the United States, with something like $1,560,000,000, followed by Canada with about $935,000,000 Netherlands, Germany, and France follow, with around $400,000,000 each; much of Germany's holdings is still in the charge of our Alien Property Custodian Probably in every country of the world, American securities are held by banks and insurance companies or by at least a few wealthy persons The estimates of American holdings in the 31 countries for which figures were obtained aggregated $4,513,000,000 on December 31, 1929 Countries not entered in the table would probably raise the total to at least $4,700,000,000

This aggregate figure is assumed to represent the value of the investments—not the actual sums originally tied up here by foreigners in past years nor the par values of securities In other words, it is the estimated capitalized value of earnings It excludes, of course, holdings by alien residents of the United States It excludes, also, the enormous volume of short-term foreign capital kept in this country for dollar-exchange purposes or invested in acceptances and brokers' loans When these short-term funds are counted it is evident that there is more foreign capital in the United States to-day than at any other time in its history

The Rate of Capitalization.

If capitalized at 5½ per cent, on the average, the yield of the estimated principal was about $259,000,000, this low rate is suggested because of the marked inflation in American stock prices, until late in 1929 It should also be borne in mind that much of the yield of these securities in recent years has been in the form of stock dividends This sum is assumed to be net after deducting income-tax payments into the United States Treasury by nonresident aliens

During 1928, a period of low yields, foreigners seem to have increased their investments here by about $450,000,000 If the average yield was only 4 per cent, the 1929 figure in the balance of payments would be $18,000,000 above the 1928 figure This would be $270,000,000

The average ratio of net profits to the net worth of 1,520 manufacturing, mining, and merchandising corporations in the United States during 1929 was 12 8 per cent, compared with 11 7 per cent in 1928, according to figures compiled by the National City Bank The average of dividends paid would be lower, of course An examination of the American industrial stocks listed on stock markets abroad suggests that foreigners are heavy holders of the so-called blue-chip stocks, whose rise has been so spectacular in the past five years

That American prosperity will continue for many years, with no very protracted setbacks, is seemingly one of the few predictable things The resulting increased yield on existing foreign investments here is an important element in any consideration of our future balances of payments The per contra item (yield of existing American investments abroad) is subject to different conditions An unusual proportion of these investments is in bonds, whose dividends can not increase but tend to decrease through refunding at lower rates whenever world money rates decline even temporarily

SHORT-TERM INTEREST AND COMMISSIONS

Although British balances of payments consider only six or seven items in all, one of those is "estimated receipts from short interest and commissions" Because of the importance of London in international finance, such emphasis is warranted In each recent year the estimated total of British receipts from this source was about $290,000 000, or about half as much as the estimated net national income from British shipping The British estimate for "commissions" covers fees on acceptances, discounts on foreign bills, merchanting commissions on oversea produce, stockbrokers' commissions, and earnings on foreign-exchange transactions It includes, also, insurance remittances from abroad and commissions of bankers who underwrite oversea capital issues, these are otherwise classified herein

Short-Term Interest Paid and Received

The results of the questionnaire to bankers, described herein under the section entitled "International Movement of Short-Term Capital," are the basis for estimates of our international receipts and payments on account of short-term interest It is assumed that the average amount of each of the several classes of accounts outstanding throughout the year was equal to the mean between the amount at the beginning of the year and the amount at the end, except in the case of brokers' loans, which are assumed to have risen to something like $500,000,000 before the stock-market crash in October and November

Average yearly money rates, derived from the Federal Reserve Bulletin or ascertained by inquiry, are applied to these mean amounts, item 3 is disregarded, and the estimated amounts of acceptance commissions are added Rather uniform rates on foreign deposits in this country are enforced by the New York clearing house The usual fee for keeping funds in brokers' loans is about one-half of 1 per cent per annum

The results thus found are $144 000,000 paid to foreigners and $88,000,000 received from foreigners

Interest on a bank account may accrue for years before the depositor withdraws it, and it does not directly affect the balance of international payments until it is withdrawn On the other hand, our balance-of-payments item, "changes in international banking accounts, as revealed by questionnaire," is based on the balances of the banking accounts from year end to year end, and those balances may include some of the interest accrued during the year Yet we are compelled to assume that the net change in those balances was a net cash claim Therefore, short-term interest in the balance of payments is perhaps best regarded as a corrective entry

Stock-Transfer Taxes and Brokerage.

During 1929 foreigners sold to Americans about $1,314,000,000 of American securities, as seen in the section entitled "International securities movement" The seller is charged stock-transfer taxes of 2 cents on each share by both the Federal Government and New York State Assuming that the volume of securities sold to Americans by foreigners, excluding bonds, was $1,000,000,000 and that the average quotation of all stocks was $100, our stock-transfer tax receipts totaled something like $400,000

A brokerage of 12½ cents per share is charged to both buyer and seller in all security transfers Assuming that all but $500,000,000 of the transactions under items *a*, *b*, *c*, and *d* of the international securities movement were on American stock markets, brokerage receipts from foreigners are estimated at $4,625,000 Other miscellaneous income to brokers in their foreign accounts is estimated to have raised this figure to $7,000,000

Interest paid by foreign speculators on margin is an item of balance-of-payments dimensions If these speculators were all "long of the market," if they maintained their positions for one-eighth of a year, on the average, their average volume of borrowings throughout 1929 was around $60,320,000 The average renewal rate on call loans for the year having been 7 03 per cent, America's receipts from this source were about $4,240,000 The like figure for 1928 was also about $4,000,000

Financial Commissions and Brokerage

Practically all receipts by Americans, for exports both visible and invisible, are made in dollar exchange Moreover, some American payments to foreigners are made by New York draft or dollar currency Others are made in exchange on foreign countries Most of the annual total of our international receipts and payments, aggregating upward of 20 billions, results in a purchase of foreign exchange, upon which American or foreign bankers make a profit. There is apparently no means of estimating how much Americans pay to foreign banks, or foreigners pay to American banks, in gross profits on foreign exchange It will be assumed, therefore, that the two sides of the account balance The same assumption must be made as regards the numerous other services of international banks, and as regards the profits from arbitrage transactions, whether on securities or in foreign exchange.

Equally elusive are stock-market brokerages and the profits and losses of foreigners from speculative " fliers " on Wall Street. Speculation by foreigners, Canadians chiefly, is extremely important, and foreign speculators in stocks, as a group and in the long run, can hardly avoid paying heavily to American brokers and to pool operators. With the rising security prices of recent years, however, they may have profited. Lack of knowledge on this point is a sizable defect in these annual surveys.

IMMIGRANT REMITTANCES

Sums sent to the " old country " by foreign-born residents of the United States are one of the least visible of the current items. They come from the more than 15,000,000 foreign-born residents in all parts of the United States, practically all of whom are self-supporting. Most of these remittances are made by international banks, by postal money orders, and by United States currency in letters. The total remitted from the United States by postal orders is public knowledge, and the part thereof consisting of immigrant remittances can be estimated closely enough. The far greater sum of such remittances through large international banks, however, usually can not be segregated, even roughly, by the bankers themselves, while currency shipments by mail leave no clues at all.

What the Item Includes.

As commonly understood, the item consists mostly of sums sent abroad for the support, partial at least, of close relatives of our immigrants. Advances of funds to relatives and friends for traveling expenses to this country are also known to be important. Thus, of the 279,678 aliens admitted during the last fiscal year, 43.4 per cent declared to our immigration authorities that their passage had been paid by relatives or by others, either in this country or abroad.

According to banks situated in the New York slum district, gifts of money for Christmas and for certain other fête days are so large as to create seasonal movements in their sales of foreign exchange. Postal authorities of the Irish Free State reported receipts of about 170,000 postal money orders from the United States during the 1928 Christmas season. Cash legacies by immigrants dying in this country are believed to be noteworthy. Interesting, if unimportant, are sums sent back for the dowries of sisters or daughters.

Contributions to educational, relief, and religious bodies, organized abroad, might be mentioned, but these probably constitute a minor group of remittances, in view of the greater strength of family rather than community ties, except in northwestern Europe. Really enormous sums have been deposited in banks abroad by our immigrants, notably in Italy. During the period of inflation probably even greater sums were sunk in Germany by our German immigrants as a speculation in exchange. Contributions to various political parties in Ireland have been mentioned, and a highway in the Peloponnesus was built largely by Greek emigrants to this country.

Of great importance, perhaps, are the sums carried back by our immigrants when they leave the United States permanently. Many leave because they have failed here, and hence have little to take away Others however, leave to invest their savings in the fatherland When an extremely wealthy immigrant departs to reside abroad on his income, his investments are likely to remain here, and the sums he draws therefrom should be classified not as immigrant remittances but as "yield of foreign investments in the United States"

The expenditures by immigrants on brief visits to the homeland are herein classified as "American tourist expenditures abroad" Purchases of foreign securities and other investments by immigrants are classified as "foreign stocks and bonds bought from foreigners in small lots" or as "direct American investments abroad," it being known that most immigrants eventually become citizens of the United States Payments by the United States Government to veterans and pensioners in foreign countries are classified as "United States Government expenditures abroad" Sums sent to churches abroad, such as the donations to "Peter's pence," are classified as "Missionary, charitable, and scientific contributions" The value of gift packages sent abroad by parcel post is ignored, as such shipments do not ordinarily appear in the total of exports by parcel post

It is convenient to classify as immigrant remittances the estimated pay roll of persons residing just over the border in Canada and commuting daily for employment in this country At Detroit this pay roll was estimated at $12,000,000 in 1928 by O M Butler, then manager of this bureau's district office in Detroit, his per contra estimate (pay roll of American residents near Detroit employed in Canada) was $1,200,000 At Buffalo and Niagara Falls the corresponding estimates for that year, by George C Doherty, of the Buffalo Chamber of Commerce, were, respectively, a debit of $2,625,000 and a credit of $300,000 The same figures, resulting in a net debit of about $13,000,000, are used for 1929

Sums Taken Abroad by Permanently Departing Immigrants.

The estimates of immigrant remittances by countries in the section herein entitled "Survey of certain invisible data by countries" include sums taken back to the homeland by immigrants departing permanently These sums are probably declining, under the influence of the immigration act of 1924, which strongly favors the admittance of quota immigrants already having one or more relatives here or having other strong ties to the United States The number of these so-called emigrant aliens departed in the fiscal year 1929 was only 69,203,[15] which is the smallest for any recent year except 1917, when military restrictions on travel cut the number to 66,277 In 1921 the number was 247,718, but it was probably swollen by the widespread unemployment of that fiscal year In 1925 the number was 92,728

The 1927 survey contained an estimate of $267 each taken out of the United States by these "emigrant aliens" The estimate was necessary, free-hand as it had to be

At least three other estimates have subsequently come to hand

1. The Czechoslovak Government circularized emigrants returned from the United States in 1925 and 1926, numbering 2,407 and 2,358,

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[15] Annual Report of Commissioner General of Immigration, 1929, p 207 The figure includes only aliens who had resided in the United States for at least a year and who did not intend to return

respectively; "but only 150 in the former year and 201 in the latter declared themselves in possession of funds." The average sum brought back by the 2,407 and 2,358 persons was found to be, respectively, only about $92.50 and $125.70. The average brought back by those "in possession of funds" was about $1,480.[16]

2. The Hungarian Central Office of Statistics found that of 2,870 emigrants returning from the United States in 1927, only 398 returned without means. Its estimated average of funds brought in by all these emigrants was only $256.[17]

3. The Yugoslav Government used a deductive estimate of $500 each brought back in 1927 from the United States by the 3,500 emigrants returned during 1927.[18] A comparison of the number of these persons with United States statistics of Yugoslavs departed during that year however, indicates that it includes persons on temporary visits to the homeland, herein classified as alien-American tourists.

Estimates for Earlier Years.

The total for this item in 1907 was estimated by C. F. Speare at $250,000,000, an estimate based largely upon his investigation among the small alien bankers in our leading cities. During the same year the Immigration Commission made an estimate of $275,000,000. Professors Bullock, Williams, and Tucker, of Harvard University, writing in 1919, deemed those estimates too high, and they adopted $150,000,000 a year as the average figure before and during the war. In 1920–21 Professor Williams circularized the banks of American cities having large foreign populations and concluded that postarmistice immigrant remittances were at least three times as great as those of the immediate pre-war period. He alluded to the increased need in Europe at that time and to the high prosperity of workers here. His bulked estimates of remittances by immigrants and by minor relief organizations for 1919, 1920, and 1921 were, respectively, $600,000,000, $700,000,000, and $500,000,000. The similarly bulked estimate for 1922, by the Department of Commerce, was $400,000,000. The 1925 survey, by Dr. Franklin W. Ryan, carried revised estimates in round millions of net immigrant remittances (after deducting sums brought by newly arrived immigrants) for the years 1922 to 1925, of 325, 290, 300, and 310. These estimates were reduced considerably by the present compiler, in the table of comparative balances of payments toward the end of this bulletin. The reasons for those reductions will now be stated.

Past Estimates Probably Too High.

There are several reasons to believe that immigrant remittances have declined somewhat in recent years and to expect that they will decline further. Europe has prospered increasingly during the past few years, and the need of assistance is less acute. When the Continent generally was on a paper-currency basis, our immigrants could sometimes bestow upon relatives abroad benefits equaling three or five times their own sacrifices in remitting them. Remittances by any individual immigrant might be expected to decline as the years pass, and with restricted immigration the proportion of newly arrived immigrants to total immigrants tend to fall Moreover, under the present restrictions, priority is given to wives and mothers of immigrants—the most dependent relatives Families have been consolidated on this side of the water

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[16] Memorandum on International Balances of Payments, 1913–1927, League of Nations, p. 89.

[17] Ibid., p. 140.

[18] Ibid., p. 197.

That all recent American estimates of immigrant remittances are too high is suggested by the corresponding estimates by foreigners of emigrant remittances received by the countries from which our immigrants come In the case of Germany in 1924 the total estimated by German economists to have been received from all countries is about a third of what the Department of Commerce had estimated to have been sent to Germany from the United States alone, and in certain other countries there are lesser disparities of the same kind [19]

Figures obtained from bankers sometimes include remittances from merchandise and for the purchase of foreign securities or for other investments

In general, estimates from abroad are likely to include sums which should be excluded for reasons explained in the foregoing discussion of "What the item includes"; this applies notably to expenditures by immigrants on brief visits to the homeland Because of the several tendencies to exaggerate, no estimate is made for countries omitted from the table

There is little to indicate, however, that a really heavy decrease has occurred during the past three or four years Remittances to China and to Spain have probably been increasing, likewise with the item of Canadian border laborers The estimated 10 per cent reduction, in the 1928 survey, was probably excessive, considering that the 1927 figure was made abnormally low by temporary conditions in Italy

Reports from Commercial Attachés and Consuls.

The estimates by the Department of Commerce for the years 1922 to 1926 inclusive, were made on the basis of a questionnaire to a few of our commercial attachés in the fall of 1922 The returns from a similar questionnaire sent out in 1927 to a much larger number of foreign representatives of our Government reported a total of $241,000,000 This figure, however, was about $20,000,000 less than normal because of the heavy withdrawal of deposits in Italy during that year, and it was about $13,000,000 too low, because it excluded the pay roll of Canadian border laborers The gross figure for 1927 apparently should have been about $260,000,000, or actually $7,000,000 more than the 1926 figure as entered in the comparative statement The latter might reasonably be raised slightly, to denote the probable decrease each year Because of the unusual Italian reduction in 1927, the 1928 figure might be raised to $250,000,000

No questionnaire was sent out for 1928 The results of that for 1929 are shown in the table under "Survey of certain invisible data by countries" The total of the approximately 40 estimates for 1929 is $246,919,000, this is adopted outright

The Final Estimate Defended.

To most countries our immigrant remittances could hardly have increased since 1927 Accordingly, except in the cases of Italy,

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[19] Memorandum on Balance of Payments, 1911–1925, Vol 1, p 127, published by League of Nations.

Spain, and China, wherever the estimate for a particular country was appreciably greater than that for 1927, the average of the two estimates was used for 1929 The Italian estimate for 1927 was abnormally low because during that year Italian immigrants drew down their deposits in Italy to the extent of about $20,000,000, instead of making the usual volume of remittances The 1927 estimate for China, $15,000,000, was probably too low

The estimates for the individual countries were usually made by our representatives abroad after consulation with foreign economists and publicists. As the subject is by no means new to them, their estimates are at least not naive The margin of error in the total is large, of course, despite the probability of many offsetting errors in the figures by countries That the final figure is possibly not too high is suggested by the figures for immigrant remittances in the Canadian balances of payments, which ranged between $258,000 000 and $296,000,000 in the three years 1925 to 1927

A Deduction from Immigrant Remittances

There is an important credit item with which to offset partially this estimated debit of $246,919,000 Each immigrant admitted to the United States is required to show to our immigration authorities $25 in cash, plus enough to cover transportation to his inland destination Most aliens thus arriving for the first time naturally bring in considerably more than this minimum sum The average amount actually shown by immigrant aliens admitted during the fiscal year 1929 (Table 11, of Annual Report by the Commissioner General of Immigration) was about $76 60 Sums brought in but not shown may have raised the average to about $90

Consulting the table of "Aliens admitted by classes under the immigration act of 1924" (see section entitled "American tourist expenditures overseas"), it is found that the quota and nonquota immigrants so arriving during the calendar year numbered 265,519, this being the total of classes Nos 5 to 16, inclusive, minus the tourist classes Nos 6 and 11 Of these, about 89 000 were from Canada, Newfoundland, and Mexico, and were considered under border tourist traffic, but no deduction is made on that account, because of the extremely large number of aliens illegally entering the United States each year If the average sum brought in per person was $90, the total was about $23,897,000

The net estimate of immigrant remittances in 1928 is, therefore, $223,000,000 The 1928 estimates are revised to a debit of 250 and a credit of 25.

WAR-DEBT PAYMENTS TO THE UNITED STATES TREASURY

The principal receipts by the United States Government from foreign sources are sums from foreign governments on account of interest and principal of obligations held by the United States The maximum annual receipt from this source—nearly 60 years hence—will be about $415,000,000 The annuities increase gradually, but last year's receipts equaled nearly half the maximum annuity

As of the dates when the debt-funding treaties were concluded, the "present worth" of the annuities stipulated therein was $5,873,638,000 at 5 per cent compound interest[20] For some purposes this sum should be included in the total estimate of United States foreign investments It is considerably less than foreign investments (long-term and short-term) in the United States

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[20] Combined Annual Reports of the World War Debt Commission, pp 44–45

In no year since 1922 have the receipts from this source been less than $183,000,000 The total collected during the calendar years 1922–1929, inclusive, is $1,608,000,000—all of which was applied to reducing the public debt of the Federal Government, as provided by law In 1929 the receipts totaled $212,002,000, as shown in the table by countries

PAYMENTS RECEIVED FROM FOREIGN GOVERNMENTS ON ACCOUNT OF PRINCIPAL AND INTEREST DUE ON THEIR OBLIGATIONS HELD BY THE UNITED STATES DURING THE CALENDAR YEAR 1929

Government	Principal	Interest	Government	Principal	Interest
Austria	$287, 556	----------	Italy	$5, 000, 000	----------
Belgium	2, 950, 000	$2, 625, 000	Latvia	----------	$90, 000
Czechoslovakia	3, 000, 000	----------	Lithuania	35, 098	143, 710
Estonia	----------	250, 000	Poland	----------	3, 000, 000
Finland	53, 000	261, 360	Rumania	500, 000	----------
France	22, 251, 463	10, 183, 528	Yugoslavia	200, 000	----------
Great Britain	27, 000, 000	133, 590, 000			
Greece	268, 923	243, 340	Total	61, 557, 285	150, 444, 885
Hungary	11, 245	57, 947			

Source United States Treasury Department

Small Deduction from War-Debt Payments.

For balance-of-payments purposes a deduction from the total payments credited to the debtor governments arises from payments received in the form of United States bonds acquired by the debtor governments for less than par The debt-funding treaties legalize payments in any United States bonds issued after April 6, 1917, if the debtor government has given a 30-day notice that this method of payment is to be elected in whole or in part In the eight calendar years ended with 1929 the total of payments credited to the debtor governments was about $1,607,600,000; of this about $1,116,100,000 consisted of principal or accrued interest of United States bonds delivered to the Treasury

This deduction seems to have amounted to only about $12,500,000 throughout those eight years, but it was about $4,600,000 in 1929, about $2,600,000 in 1928, about $1,200,000 in 1927, and about $3,600,000 in 1923 As the annuities rise in future years the deductions are likely to become more important, particularly in periods of rising money rates

The estimates assume (1) that the bonds tendered had been purchased by the debtors during the three months preceding the date of tender and (2) that the purchase price included three-fourths of the accrued interest for which the tendering government received credit. The average purchase price of the bonds was computed from the market quotations of each Wednesday during the three months The computation, though laborious, does not pretend to fine accuracy

War-Debt Receipts in Our Balance of Payments.

Persons unfamiliar with the magnitude of international transactions find it difficult to put the war-debt payments into proper perspective Many have feared that these payments would have to be received in imported merchandise in quantities that would swamp domestic production Last year's war-debt receipts were about $212,000,000, while our receipts from foreigners totaled over $10,000,000,000 Graphically represented, if our total cash receipts from abroad covered the 52 square inches of this page, the space covered by the war-debt receipts would be considerably less than that of two ordinary American postage stamps

The following is an excerpt from the 1926 survey

> There has been much loose reasoning as to the influence of the war-debt receipt upon our merchandise trade It is a serious error to say that the debtor nations can pay us only by shipping merchandise Our war-debt receipts are an invisible export As such, they tend (1) "to detract from" all our other exports—including not only merchandise exports but invisibles and (2) "to promote" every import, whether visible or invisible The numerous invisibles will absorb a large part of the influence of the debt receipts, and reduction in our merchandise exports may absorb even more No great increase in merchandise imports is thus to be expected as the result of debt receipts, and a part of such increase would be in noncompetitive goods on the free list The reduction in our merchandise exports through war-debt receipts will injure us precisely as a labor-saving device would injure us, imports, visible and invisible, will come to us without future effort, that is, without our being compelled to produce again a corresponding value of visible and invisible exports to exchange for them A nation is not impoverished by receiving wealth[21]

OTHER GOVERNMENTAL TRANSACTIONS

The aggregate receipts and payments under the head of "Other governmental" have risen from a total of about $132,000,000 in 1922 to about $212,000,000 in 1929, largely because of the heavy cash refunds made by the Alien Property Custodian in the more recent years So large and heterogeneous a group of transactions deserves analysis, which is supplied in the table In every item care was taken to exclude transactions with territories within our balance-of-payments area A few of the minor items, however, pertain to the year ended June 30, 1929.

FOREIGN CASH TRANSACTIONS OF THE UNITED STATES GOVERNMENT (OTHER THAN WAR-DEBT RECEIPTS), FOREIGN REPRESENTATION IN THE UNITED STATES, AND PANAMA CANAL TOLLS PAID BY AMERICAN VESSELS

[In thousands of dollars]

Department or bureau	Receipts	Payments	Department or bureau	Receipts	Payments
Treasury Department			Department of State—Con		
German mixed claims	13,512				
German Army costs	13,104		International bureaus and indemnities		1,118
Advance to Greece		[a] 12,167	Consular fees collected	[c] 6,561	
Miscellaneous bureaus	135	531	Veterans' Bureau		8,300
Alien Property Custodian		50,000	Pension Bureau		1,359
Navy Department		30,410	Post Office Department [d]	366	3,186
War Department		20,305	Department of Commerce		1,700
Panama Canal	[b] 17,000	13,107	Department of Agriculture	73	336
Department of State			Department of Labor	([e])	([e])
Foreign representation here	9,000		Department of Justice	([e])	([e])
American representation abroad		8,342	Department of Interior	([e])	([e])
American embassy and legation buildings		1,409	Total	59,751	152,270

[a] A nonrecurring transaction

[b] Net revenue from canal operations transferred from the Zone to Washington

[c] The per contra transactions appear under "Other merchandise adjustments"

[d] Excluding postal money-order transactions

[e] Negligible

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[21] See also discussion of "promotive" and "detractive" influences in section entitled "Purpose and Methods of Balance of Payments"

MISSIONARY, CHARITABLE, AND SCIENTIFIC CONTRIBUTIONS

No general questionnaire was sent out to ascertain the expenditures abroad in 1929 of religious, charitable, and scientific organizations in the United States It was assumed that most of the contributing organizations would continue to remit in about the same volume as in 1928, on which a complete report was printed in the 1928 survey

Letters were sent, however, to five of the largest remitting organizations Protestant contributions in 1929 will be entered at $29,000,000, or $1,000,000 less than in 1928 The American Joint Jewish Distribution Committee reports $1,114,000 less for 1929 The American Red Cross spent about $65,000 less outside our balance-of-payments area; as in 1928, its heaviest remittances were to Porto Rico in connection with the hurricane The heavy remittances by the Rockefeller Foundation were about $16,000 less Remittances by the Near East Relief were off $139,000

These five important organizations reported an aggregate decline of $2,334,000 The total for 1928 was $52,471,000 That total, however, incorrectly included $1,503,000 remitted by the Hebrew Sheltering and Immigrant Aid Society, which functions as a bank, its operations should have been included under "Immigrant remittances" The 1929 total was, therefore, about $48,634,000, that for 1928 is revised to a debit of 51

INTERNATIONAL INSURANCE TRANSACTIONS

Life insurance in force in the United States is about three times as great as in all other countries combined The fields of fire, casualty, fidelity, and marine insurance also are covered by our highly diversified insurance organizations The annual premiums on American insurance, of all kinds, sold to policyholders beyond our frontiers are extremely large Not all of this, however, should enter the balance of payments, the administrative expenses of our companies abroad, plus their foreign investments made out of premiums received abroad and insurance claims paid to policyholders abroad, probably reduce this invisible export at least by half Besides, our premium payments to foreign insurance companies, including payments for reinsurance, constitute an outgo offsetting, partly or largely, our insurance exports Available statistics are fragmentary and never very recent, such as are pertinent are summarized below

American Insurance Exports to Canada

Canadians are our most important foreign policyholders During 1927 the 17 American life-insurance companies in Canada had a "premium income and annuity consideration" of about $58,000,000 (Report of the Superintendent of Insurance, Dominion of Canada, p lii) The total assets in Canada of these American companies at the end of 1927 was about $287,000,000 (p lxvii), and their gross amount of insurance in force on that date was $1,659,000,000 (p lxxxv)

In September the compiler circularized the 14 American life-insurance companies which were writing new business in Canada in 1928, requesting "a rough estimate of the excess, in 1928, of your remittances to your head office in the United States (exclusive of profits) over receipts from your head office." The investigation yielded little that was concrete, despite the obvious desire of the companies to cooperate. The books of the companies are not set up to show the desired information. Several of the companies make a practice of depositing exclusively in Canadian banks and of investing exclusively in Canadian securities. Such part of the latter as are bought on Wall Street, however, would be included herein under "International Securities Movement." During the war the Canadian insurance act was amended to require all foreign life-insurance companies to invest at least half of their Canadian deposits in Canadian securities, but the amendment was later repealed. Investments may now be made in any security authorized by the Treasury Board; these include foreign government and state bonds.

American fire-insurance companies operating in Canada number almost exactly 100; in 1928 net premiums collected by them aggregated about $19,000,000. In addition are a host of American miscellaneous insurance companies in Canada dealing with such branches as tornado, hail, credit, fidelity, plate glass, boiler, burglary, automobile; their net premiums in 1928 totaled about $6,000,000. (Dominion Superintendent Report, Fire and Miscellaneous, 1928; pp. cxcv and cvii.)

American Insurance Exports Elsewhere

American companies transact insurance business in more than 30 countries. Most of the business is in this hemisphere, very little of it is in Europe; some of it is in the Far East. Most types of American insurance companies are represented in the United Kingdom. In Canada we lead British companies in life and in certain miscellaneous insurance, but follow British companies in fire insurance. American companies seem to lead in Cuba and the Philippines, and they have important interests in nearly all the Latin American countries and China. American companies operating in Cuba and the Philippines run into the dozens.

American Imports of Insurance.

About 68 regularly licensed and about 18 nonlicensed foreign companies transact fire and marine insurance business in the United States. Net premiums collected in 1927 by the licensed companies totaled $160,210,000 (p. A–164, Fire and Marine, 1927). The net amount remitted abroad to their home offices during 1928 by these United States branches of foreign fire-insurance companies was $13,888,533. The corresponding marine-insurance figure was $2,385,662; total, $16,274,195. (The Insurance Yearbook for 1929, Fire and Marine, p. 488.) This is one of the few figures of real use, for-balance-of-payments purposes, anywhere obtainable. The fact that the fire-insurance remittances to foreigners (including Canadians) exceed the corresponding marine-insurance figure is somewhat surprising, particularly as the latter figure must include hull insurance, in which American companies have great difficulty in competing. Probably some of the net remittances of these companies should be classed as "yield of foreign investments in the United States" rather than as imports of insurance services.

There are in this country numerous Canadian and British life and miscellaneous insurance companies Figures for their operations are not summarized in the statistical publications on insurance

Conclusion.

The net figure for America's international dealings in insurance of all kinds can not be computed or estimated satisfactorily It is probably not a large figure Nor can the total volume be closely approximated. The extremely rough assumption is made that the account balanced at $70,000,000 in all recent years This conclusion necessitates revisions in the estimates of previous years

MISCELLANEOUS MINOR ITEMS

International Advertising.

No other nation makes such extensive use of advertising in either its domestic trade or its export trade as the United States Eight leading export advertising agencies at New York carry a total of nearly 250 export advertising accounts, the total bookings of which have been carefully investigated by the specialties division of the Bureau of Foreign and Domestic Commerce At least six important American advertising agencies have established their own branches in other parts of the world, primarily " to serve the accounts " of a few of the largest and most prolific advertisers of the United States. Much additional American advertising abroad is placed through foreign agencies or directly by our manufacturers In the case of certain commodities, disbursements for this purpose are deducted from the proceeds of sales abroad by the representatives of the American exporter

The total foreign advertising bill of the United States in 1929 was probably not less than $50,000,000, and this does not include voluntary advertising by foreign concerns on behalf of American merchandise Much of this goes to Canada Our previously published estimates are clearly too low and must be revised Exact figures are, of course, impossible to obtain

Regarding the flow of advertising funds in the opposite direction, there is less to go by A glance through the advertisements of leading New York newspapers reveals a tremendous emphasis on imported merchandise, but how much of such advertising is financed by the foreign suppliers of goods is unknown There is a constantly growing volume of tourist advertising directly paid for by foreign governments, railroads, steamship companies, and hotels Besides are cooperative campaigns financed by foreign producers; witness Japan tea, Ceylon tea, Brazilian maté, Brazilian coffee, Norwegian cod liver oil, and Spanish olives A fair figure for the cash remittances involved during 1929 would be $5,000,000

The foregoing information was supplied by the chief of the specialties division of this bureau

Cablegrams, Radiograms, and Telephone Services

For the 1927 survey, in order to learn the totals involved in our international communications, the seven companies operating in this field were circularized and assured that their individual returns would be guarded in utmost secrecy. All seven companies reported the sums they had received from foreigners and paid to foreigners during the calendar year 1927 It was thus found that during 1927 communication companies in the United States collected $21,706,000 from foreigners and paid foreigners $18,095,000

As the volume of these transactions probably does not vary sharply from year to year, the companies were spared the inconvenience of a questionnaire on their operations in 1928 Both the credit and the debit of this account increased by about 5 per cent in 1928, according to the chief of the communications section of this bureau This estimate was based upon oral information received from officers of the companies The credit, therefore, was 23; and the debit 19

The seven companies were again circularized as to their foreign operations in 1929, and again all seven reported The year's operations resulted in collections from foreign countries of $27,070,814 and payments to foreign countries of $19,014,657 The interpolated figures for 1928 would be a credit of 24 and a debit of 19, but no revision is made in the 1928 estimates

Imports of Canadian Electric Power

Beginning with the second quarter of 1926, the Dominion Bureau of Statistics has published statistics on the kilowatt-hours and values involved in its export of electrical energy to the United States In 1929 the kilowatt-hours numbered about 1,565,000,000, valued at $4,075,231 The per contra item in the Canadian figures came to only $97,020.

Subscription to Magazines and Newspapers

The 1926 survey estimated foreign subscriptions to American magazines and newspapers at $5,000,000, and that figure is now repeated for 1929 The Blue Book of the Audit Bureau of Circulation for 1926 showed that foreign subscriptions to 27 of the more important American periodicals totaled about $2,950,000 Most of these subscriptions were by Canadians

The per contra item, American subscriptions to foreign newspapers and magazines, was arbitrarily estimated at $1,000,000 in 1926 and again in 1927. This estimate was certainly too low, as was recently pointed out by Prof Herbert Feis, of the University of Cincinnati

A circular letter to a few of the larger public libraries of the country elicited the following information In 1927 the New York Public Library received 12,691 foreign periodicals, of these, 5,191 were paid for, and the rest were obtained as gifts or through exchange In 1928 the Chicago Public Library was receiving 289 foreign newspapers and magazines, the Free Library of Philadelphia was receiving 307, the San Francisco Public Library, 114, that at Detroit, 280; and that at Boston, 690

Most of these foreign subscriptions by public libraries and by universities go through the hands of a relatively small number of firms especially equipped for such service Several of these firms were circularized, but only one was willing to estimate the total business of all such firms, plus the subscriptions sent direct That firm estimated American subscriptions to foreign periodicals in 1928 at $3,000,000 This estimate is adopted for 1929

International News Services.

American newspapers and press syndicates gather news from the four corners of the globe, at considerable expense, and there is a per contra item of "American news exported" Much of the expenditure under this head is believed to be included herein under cablegram and radio charges and under tourist expenditures; hence no separate entry is made in the table

FOREIGN CAPITAL SECURITIES PUBLICLY OFFERED IN THE UNITED STATES

The purchase of foreign securities and the making of other new foreign investments have for many years constituted our largest invisible import These transactions for 1929 are herein included under three groups (1) Foreign capital issues publicly offered in the United States; (2) privately taken foreign issues and direct investments abroad, and (3) foreign stocks and bonds bought from foreigners in small lots, as learned by questionnaire The third group is covered under the "International securities movement"

A separate bulletin (released on April 9)[22] by this division is devoted to the details of foreign securities publicly offered in this country during 1929 It contains an itemized schedule of the 148 foreign issues brought out here during the year, classified by countries and areas, by type of issuer, and by months and quarters It contains, also, a review of the conditions responsible for the great decline in this type of financing. The following table was extracted therefrom

PAR VALUE OF FOREIGN SECURITIES PUBLICLY OFFERED IN THE UNITED STATES IN 1929

Country of issue or destination of capital	Nominal capital: Government issues and government-guaranteed corporate issues	Nominal capital: Corporate issues	Nominal capital: Total issues	Total net nominal (less refunding)	Net discount (−) or premium (+)
Europe					
International	-------	$7,720,745	$7,720,745	$7,720 745	-------
Denmark	$3,575,000	-------	3,575,000	1,575,000	−$187,687
France	-------	200,000	200 000	200,000	-------
Germany	21,476,000	10,149,000	31,625,000	29,625,000	−1,984,590
Great Britain	-------	19,060,597	19,060,597	19,060,597	−100,000
Italy	-------	13,700,000	13,700,000	13,700,000	−511,875
Rumania	5,419,500	-------	5,419,500	5,419,500	−650 340
Sweden	-------	64,671,339	64,671,339	64,671,339	−522,000
Total Europe	30,470,500	115,501,681	145,972,181	141,972,181	−3,956,492
Canada	159,710,600	149,019,700	308,730,300	289,693,425	−2,066,235
Latin America					
International	-------	59,827,200	59,827,200	59,827,200	-------
Argentina	1,500,000	3,185,000	4,685,000	3,185,000	−60,000
Brazil	10,898,000	5,485,000	16,383,000	16,383,000	−1,279,190
Chile	42,400,000	28,000,000	70,400,000	70,400,000	−3,266,000
Colombia	1,750,000	-------	1,750,000	1,750,000	−122,500
Cuba	10,000,000	7,927,500	17,927,500	17,927,500	-------
Mexico	-------	1,337,500	1,337,500	1,337,500	−50,000
Panama	500,000	940,000	1,440,000	1,440,000	−2,500
Venezuela	-------	2,700,000	2,700,000	2,700,000	-------
Total Latin America	67,048,000	109,402,200	176,450,200	174,950,200	−4,780,190

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[22] American Underwriting of Foreign Securities in 1929, by Paul D Dickens Trade Information Bulletin 688

PAR VALUE OF FOREIGN SECURITIES PUBLICLY OFFERED IN THE UNITED STATES IN 1929—Continued

Country of issue or destination of capital	Nominal capital: Government issues and government guaranteed corporate issues	Nominal capital: Corporate issues	Nominal capital: Total issues	Total net nominal (less refunding)	Netdiscount (−) or premium (+)
Far East					
China		$50,000,000	$50,000,000	$50,000,000	
Japan		11,450,000	11,450,000	1,450,000	−$429,375
Total Far East		61,450,000	61,450,000	51,450,000	−429,375
United States Territories and possessions					
Alaska		5,200,000	5,200,000	5,200,000	
Hawaii	$3,520,000	375,000	3,895,000	3,895,000	+72,844
Philippine Islands	500,000	2,500,000	3,000,000	3,000,000	+8,850
Porto Rico	1,070,000		1,070,000	1,070,000	+35,476
Total Territories and possessions	5,090,000	8,075,000	13,165,000	13,165,000	+117,170
Grand total offerings	262,319,100	443,448,581	705,767,681	671,230,806	−11,115,122

Gross and Net Public Offerings During 1929.

The total par, or "nominal," value of foreign capital securities publicly offered in the United States during 1929 was about $705,768,000 This figure includes $10,165,000 of issues by the Territories or possessions inside our balance-of-payments area The nominal value of the publicly offered capital securities issued outside the United States balance-of-payments area was, therefore, about $695,603,000

After computing this entry in the balance of payments for the gross export of capital resulting from the purchase of this class of foreign securities, the following three deductions from the total par value are necessary

(*a*) About $34,537,000 for the new issues know or estimated to have been used for refunding (converting) old issues held by Americans This figure excludes, of course, refunding to Americans from the new issues by the United States Territories and possessions within our balance-of-payments area

(*b*) About $11,223,000 for bonds and stock discounts (minus the relatively few premiums)

(*c*) About $14,813,000 for commissions retained by American underwriters from the proceeds of issues. This estimate is made on the basis of information from American financiers engaged in foreign underwriting This year's abnormally low figure resulted chiefly from the unusual proportion of Canadian issues, on which commissions are very narrow Besides more than a seventh of the year's total was issued to the stockholders of American corporations operating abroad

A fourth deduction can not be separately computed Certain securities publicly offered here during the year may have been resold to foreigners in small blocks later in the year. This is accounted for under the "international securities movement" as "foreign stocks and bonds (old and new) resold to foreigners"

Forthcoming Handbook on American Underwriting.

For several years this division has been investigating foreign securities publicly offered here since 1913 The results will appear in a handbook to be issued this fall While this handbook was being compiled, revisions of the division's figures for past years were frequent The table, by years, herein printed for the first time, may be considered as final.

TOTAL FOREIGN CAPITAL ISSUES (GOVERNMENTAL AND CORPORATE) PUBLICLY OFFERED IN THE UNITED STATES, 1914–1929

Year	Nominal capital		Refunding		Estimated net nominal capital
	Number of issues	Amount	Number of issues	Estimated amount	
1914	26	$44, 670, 288	1	$655 000	$44, 015, 288
1915	80	817, 529, 272	6	13, 675 000	803, 854, 272
1916	102	1, 159, 601 264	4	3, 700, 000	1, 155, 901, 264
1917	65	720, 297, 150	9	37, 650, 000	682, 647, 150
1918	28	23, 465, 000	3	2, 600, 000	20, 865, 000
1919	65	771, 044, 700	12	379, 257, 300	391, 787, 400
1920	104	602 937, 986	4	105, 500, 000	497, 437, 986
1921	116	692, 412, 963	12	69, 105, 083	623, 307, 880
1922	152	863, 048, 284	16	99, 421, 300	763, 626, 984
1923	76	497, 597, 350	8	77, 000, 000	420, 597, 350
1924	120	1, 217, 217, 937	17	247 993, 500	969, 224, 437
1925	164	1, 316, 166, 150	23	239, 700, 000	1, 076, 466, 150
1926	230	1, 288, 459, 182	28	162, 978, 000	1, 125, 481, 182
1927	265	1, 577, 414, 260	22	240, 654, 000	1, 336, 760, 260
1928	221	1, 489, 361, 680	26	238, 410, 413	1, 250, 951, 267
1929	148	705, 767, 681	11	34, 536, 875	671, 230, 806
Total, 1914–1929	1, 962	13, 786, 991, 147	202	1, 952, 836, 471	11, 834 154, 676

PRIVATELY TAKEN FOREIGN SECURITIES AND DIRECT INVESTMENTS ABROAD DURING 1929

The finance and investment division records, from its varied sources, all information obtainable upon foreign-loan transactions of the United States—not simply public offerings here of foreign stocks and bonds Its 1929 records cover 226 transactions, classified as foreign securities privately taken (in large blocks), direct investments, credit grants, and the floating of securities of United States investment trusts known to be specially interested in foreign securities Some of the latter have their own agents abroad, from whom they buy securities directly, such purchases would not appear in the returns from the questionnaire to bankers on the international securities movement

The schedule of these transactions is omitted from this survey. As such transactions are not openly advertised, and in some cases are based upon rumor, liberal reservations must be made as to both the accuracy and the completeness of the schedule In this field there are no privately published compilations with which to check Omission estimates are necessary. On the other hand, the credit grants are duplicated extensively in the returns from the questionnaire to international bankers regarding bank loans and deposits; and the foreign securities privately taken, whether by investment trusts or others, are duplicated extensively in the returns from the questionnaire on the international securities movement Only the direct investments in physical property abroad are free from the risk of duplication The compiler's conclusion as to the proper amount to enter in the balance of payments is made after a scrutiny of each item in the division's schedule The 1930 schedule is perhaps unusually complete, the census of the total of United States direct investments outstanding, begun in the summer, uncovered a number of recent transactions which might otherwise have been overlooked.

The omission estimate ($80,000,000) is assumed to include also sums "plowed in" from the yield of previous investments Such sums are assumed to be included in the credit items "Earnings of private long-term investments abroad"

It is estimated that the 1929 total of such transactions as are not duplicated elsewhere is $335,000,000, distributed in round millions of dollars as follows Europe, 160, Canada, 70, Latin America, 95; and Far East, 10

REDUCTIONS OF PREVIOUS PRIVATE AMERICAN INVESTMENTS ABROAD

The United States portfolio of foreign investments was expanded during 1929 by the three groups of acquisitions already discussed At the same time three classes of transactions were reducing the portfolio (1) Retirements of foreign bonds by sinking-fund and redemption payments, (2) resales to foreigners of American direct investments abroad, and (3) sales to foreigners of foreign stocks and bonds, mostly floated here in previous years The third class is covered in the section headed "International Securities Movement" Neither reductions nor increases in the market value of our previous foreign investments held throughout the year directly affect the balance of payments, as they do not result in cash claims honored during the year

Each year the finance and investment division requests from every United States underwriting house "a list (by issues) of sinking fund, amortization, or redemption payments made during the year on all foreign loans ever brought out by your house, or for which your house now acts as paying agent or trustee" With these lists as a basis, two itemized schedules were prepared, one for redemption payments and the other for sinking-fund and amortization payments A special investigation was made last summer to ensure that no paying agent or trustee was being overlooked

Bond-Redemption Payments to Americans

In many cases bond redemptions are made by call prior to maturity, at a rate stipulated in the bond contract, such operations necessitate the questionnaire to American underwriting houses This division has detailed records of more than 1,800 foreign capital issues publicly offered here before 1929 All bond issues maturing in 1929 were studied to see whether they were accounted for in (*a*) the refunding column of the 1929 schedule of publicly offered issues, (*b*) in the questionnaire returns, or (*c*) in both places Our 1929 figure of $177,783,833 (exclusive of refunding entries in the 1929 schedule of public offerings), against 24 bond issues publicly offered here, thus checked, is very accurate[23] Its actual geographic distribution in round millions of dollars follows Europe, 101 (reduced below to 93), Canada, 75 (reduced below to 71), and Latin America, 2 Redemption payments by Territories and possessions within our customs area are excluded

The total in 1929 was the smallest in six years High money rates—that is, the world shortage of capital—may have prevented redemptions in this market from funds borrowed in foreign money markets The largest issue redeemed was the $54,000,000 of 10-year 5½'s of the Dominion of Canada The next largest in the list was the $25,000,000 issue of Kingdom of Sweden 6's

These annual surveys formerly made omission estimates of sums received by Americans in redemption of bonds bought in small lots from foreign stock exchanges No such estimate will be made for 1929 Instead, a deduction is necessary for payments to foreign holders on bonds originally floated here The questionnaire used in 1929 requested rough estimates of the amount of such payments Exact figures would be unobtainable, as the foreign-held bonds are usually tendered for redemption by correspondent banks at New York, along with domestic-held blocks, so the redemption agent does not know who ultimately receives the funds Despite this difficulty, useful information was obtained; on the 1929 list 5 per cent would probably be a fair estimate of the share going to foreign holders of the Latin American and Canadian issues and about 8 per cent on the European issues

In round millions this reduces the geographic figures to the following Europe, 93; Canada, 71; and Latin America, 2

Sinking-Fund Payments to Americans.

A large proportion of the foreign capital securities publicly offered here are sinking-fund bonds Thus, in 1928, of the 220 publicly offered issues, about 112 were bonds carrying sinking-fund provisions Payments under such provisions, however, commonly do not begin until, say, the third or fifth year after the bonds are floated

The questionnaire replies indicate that in nearly all cases the sinking-fund payments were promptly used to retire foreign bonds by purchase in the open market from Americans The retired bonds are usually held until maturity by the paying agent, in some cases they continue to draw interest, which is used to swell the sinking fund The effect, for balance-of-payment purposes, is virtually that of retirements upon serial maturities It is especially rare in foreign financing for the paying agent or trustee to be authorized to build up an amortization portfolio with any securities he may elect In other words, sinking-fund payments are really bond-redemption payments on the installment plan.

Our 1929 schedule of sinking-fund payments totals $109,790,329 It covers over 300 different bond issues by 39 different countries The checking with the 1928 schedules was so satisfactory as to indicate that both schedules are trustworthy

In the case of foreign issues brought out in the United States and having a paying agent here, there are probably next to no omissions Unlike redemption payments, there is no need for an omission estimate of payments against foreign bonds publicly offered abroad and later acquired by Americans in small blocks in the international securities movement, for sinking-fund retirements of such bonds would be caught by the "big questionnaire" under "foreign stocks and bonds sold abroad" Accordingly the 1929 figures are entered in the balance of payments as compiled The geographic distribution in round millions of dollars is as follows Europe, 64, Canada, 6; Latin America, 34, and rest of world, 6

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[23] Our schedule of redemptions was checked, also, with those published regularly in the Annalist

Resale to Foreigners of American Direct Investments Abroad.

American direct investments abroad have been estimated as high as $5,000,000,000, and they have been increasing at the rate of, say, a quarter billion a year Any such large holding—consisting of perhaps thousands of items, large and small—naturally has its "backwash," too There must have been very numerous instances of the resale of such investments of foreigners, although definite information on such transfers rarely comes to hand

Large American companies maintain, for years on end, their foreign warehouses, petroleum tanks and refineries, mines, forests, plantations, branch factories, and branch stores Smaller concerns and individuals are likely to hold their direct investments for shorter periods

In 1929 schedules were compiled, from the press and other sources, of such items under this head as could be uncovered Omission estimates of 20 per cent raise the total to $58,000,000, distributed geographically as follows, in round millions Europe, 38, Canada, 18, and Latin America, 2

NEW DIRECT INVESTMENTS IN UNITED STATES BY FOREIGNERS DURING 1929 AND CHANGES IN PREVIOUS INVESTMENTS

Direct Investments

The organization of the Bureau of Foreign and Domestic Commerce is such as to enable it to obtain a fair estimate of the amount of new foreign capital directly invested in physical properties in this country during a particular year The bureau has about 70 district and cooperative offices, strategically located throughout the country, also it has at Washington 15 commodity divisions in close contact with the foreign transactions of every branch of American industry One of the duties of these divisions and regional offices is to ascertain the capital composition of concerns applying for bureau services In these and other ways, all important increases in the foreign ownership of American enterprise come to the knowledge of this bureau

A questionnaire to all these divisions and regional offices covering the calendar year 1929 uncovered less than $500,000 of new investments in this class during the year, a reduction from the 1928 total of $34,600,000 An interesting item this year was foreign investment in citrus orchards in Florida

Nine large transactions recorded from the financial press by the finance and investment division raise the total to $27,625,000; and an omission estimate brings our final figure to $31,000,000 One of the items was the flotation in England of shares of the American Austin Car Co

Evidence was obtained of the resale to Americans of foreign direct investments here of approximately $15,000,000 during 1929

Bond-Redemption and Sinking-Fund Payments to Foreigners.

There is no means at present to compile itemized schedules of bond-redemption and sinking-fund payments by Americans to foreigners A rough estimate is necessary The 1928 estimate was $70,000,000, based on the ratio of per contra payments on American investments abroad to the total of such investments The 1929 figure is assumed to be $77,000,000

INTERNATIONAL SECURITIES MOVEMENT

Magnitude of the Movement

The largest group of foreign transactions of the United States, after its merchandise trade, pertains to "stocks and bonds internationally transferred through stock markets" In 1928 the total of these transactions seems to have been about $3,804,000,000, or more than one-sixth of our international turnover Some idea of the pre-war importance of these security transfers is gained from the fact that the Dollar Securities Committee, created by the British Government in July, 1915, to "mobilize" British holdings of dollar securities, acquired 1,810 different United States securities valued at $1,322,000,000, most of these, in number at least, had been bought in small blocks on our stock exchanges

Through this ceaseless ebb and flow of securities the United States has had, on balance, an annual net import of capital of between $300,000,000 and $400,000,000 in nearly all recent years, according to the table summarized on pages 56 and 57 of the 1928 survey In the seven years ended with 1928 foreigners seem thereby (on balance) to have acquired about $1,482,000,000 of United States securities and reduced United States holdings of foreign securities by about $526,000,000

Nature of the Movement.

There is a colossal volume of foreign purchases and sales of securities by foreigners on Wall Street, and the volume of like transactions by Americans in stock markets abroad is apparently about a third as great Canadian Provinces are as closely connected to Wall Street, by ticker services and brokerage agencies, as some of the States, and even in Europe speculators (as distinguished from investors) favor United States securities because of the radical fluctuations in their prices The world over, investors buy United States securities in order to participate in American prosperity, and with the improving credit of foreign countries they repatriate[24] foreign securities previously brought out here The recent rapid growth of United States investment trusts has created an important market for foreign securities in small blocks for diversification

Once a security, whether American or foreign, is listed both on our exchange and on one or more foreign exchanges, price leveling starts almost automatically by arbitrage brokers buying in the cheap market and selling in the dear market These transactions occur with nearly every important fluctuation in the price of the security At New York they "average about 25,000 shares a day and sometimes reach as high as 200,000 shares a day," according to the Magazine of Wall Street (July, 1929) This volume of transactions would probably involve market values of something like $750,000,000 a year Most of these transactions are quickly "washed out," but in many cases actual deliveries of securities must be made

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[24] Transfers of foreign bonds listed on the New York Stock Exchange totaled $559,434,000 in 1928 and $457,903,000 in 1929 In addition are over-the-counter transfers and dealings in unlisted bonds These figures include, of course, transfers to Americans as well as to foreigners

The Balancing Efficiency of the Securities Movement

It looks now as if these security-arbitrage transactions might some time become the foremost settling item in America's international accounts, coming before even gold shipments and "changes in international bank accounts" Every year sees additional foreign listings on our stock exchanges and additional American listings on foreign stock exchanges This development makes possible a growing volume of security arbitrage A fluctuation of one-fourth of 1 per cent in foreign exchange rates may cause (or prevent) a great volume of dealings by security arbitrageurs, whereas so slight a fluctuation may not move gold; thus current international indebtedness tends to be reduced or settled by security arbitrage before an impending gold movement gets started There is certainly a tendency, even now, for the directions of security movements and of gold movements to coincide This tendency is not revealed, however, from our very rough figures for recent years, possibly because arbitrage transactions are only a part of the total international movement of securities

The earlier economists thought that international accounts would always be kept near equilibrium by the effect of gold shipments upon the prices of commodities In the United States, where stock-market speculation is so prevalent, incoming gold is likely to become the basis of credit used to inflate the prices of securities rather than of commodities The ensuing rise in stocks would tend to restrict our exports of them—except to Canada, which seems usually to participate in our security booms On the other hand, bond prices normally decline during a wave of stock speculation, and foreigners might repatriate an unusual volume of their bonds in such periods

Absolute Totals Only Vaguely Known

Brokerage houses usually do not separate foreign orders from domestic ones in their accounting, and they have no reason to record precisely how much of the foreign orders are for United States securities and how much are for foreign securities A still greater obstacle is that some of the transactions are on margin and involve international cash transfers of only part of the value of the securities Rough estimates are all that can be hoped for

The annual questionnaire by this division on stocks and bonds internationally transferred through stock markets requested such estimates Replies were received from some of the stock-exchange firms known to handle most of this foreign business, from numerous international bankers, and from some of the leading investment trusts It requested that the estimates exclude (1) original subscriptions to foreign securities publicly offered here, (2) purchases for sinking-fund and redemption operation, and (3) dealings by Americans in foreign securities on our market It requested, further, caution against having the same transactions reported by both principal and agent

About a dozen important houses that reported for 1928 refused to report this year. As a result, the compiled figures are much smaller this year than in 1928, despite the universal opinion that foreign activity in our security markets in 1929 had rarely or never been exceeded. The total of transactions, exactly as reported for 1929, was only $2,931,000,000, as shown under headings *a*, *b*, *c*, and *d*, below. As the total reported for 1928 was $3,804,000,000, including 10 per cent for omissions, and as the true total for 1929 was certainly larger, all four figures for 1929 are increased in a uniform ratio (43.3 per cent) so as to raise the total to $4,200,000,000. Some such arbitrary step is believed necessary to denote the year's increase.

Deduction for Marginal Trading.

For the purpose of a balance of payments, an estimate is necessary of the deduction for marginal trading by foreigners, notably Canadians, on our security markets. (Marginal trading by Americans on foreign security markets is believed to be unimportant.) To gain something resembling inductive information on this point, the following question was included in the 1929 questionnaire for the first time: "As a rough guess, about what per cent of the transactions in American securities were on margin?" A number of the returns, including those of all out-of-town institutions, carry zero under this head, the others range from 2 to 75 per cent. It is thought that something like 50 per cent is the correct figure, and it is further estimated that during 1929 the cash margins deposited with brokers averaged at the high level of 35 per cent. These estimates, if approximately accurate, would justify the deduction of 17.5 per cent from items *c* and *d*, as shown.

Margin requirements in 1928 being estimated at 20 per cent, the 1928 figures for items *c* and *d* are revised, respectively, to 1,044 and 1,528, before making the "60–40 adjustments."

STOCKS AND BONDS INTERNATIONALLY TRANSFERRED THROUGH STOCK MARKETS IN 1929

(*a*) Foreign stocks and bonds bought by Americans from foreigners residing beyond our political boundaries, $411,840,000. (As raised for omissions, 590, after 60–40 adjustment, 588.)

(*b*) Foreign stocks and bonds sold by Americans to foreigners residing beyond our political boundaries, $307,070,000. (As raised for omissions, 440, after 60–40 adjustment, 442.)

(*c*) American stocks and bonds bought back by Americans from foreigners beyond our boundaries, $916,907,000. (As raised for omissions, 1,314, as reduced by margin trading, 1,084, after 60–40 adjustment, 1,080.)

(*d*) American stocks and bonds sold by Americans to foreigners beyond our boundaries, $1,294,765,000. (As raised for omissions, 1,856, as reduced by margin trading, 1,531; after 60–40 adjustment, 1,537.)

The 60–40 Adjustments for Errors.

Of the "international turnover" (the footings of the two columns of the balance of payments) over half consists of compiled statistics on merchandise, gold, silver, public offerings, government transactions, etc. About half of the transactions are in the four "ratio" items of the international securities movement, the figures for which are extremely uncertain. An error of even 10 per cent in any of these four items for 1929 would range between $44,000,000 and $186,000,000.

Because of the great uncertainty as to the absolute amounts of these "ratio items," it is assumed that 60 per cent of the "net discrepancy due to errors and omissions " of the statement resides in them. The last step in compiling the balance of payments, therefore, is to alter the four items in a uniform ratio which will eliminate 60 per cent of the net discrepancy in the entire statement as first computed.[25] The adjusted figures, in rounded millions, are inserted in parentheses after the totals from the returns.

There was little need for this adjustment in either 1928 or 1929; for the net discrepancies in those years were very small. The revised balances of payments for 1926 and 1927, however, had net discrepancies of minus 119 and plus 118, respectively. Thus the total range of error in those years was $237,000,000. Since in both years all current items had been estimated by uniform methods, it seemed certain that most of the net discrepancies had resulted from errors in some of the capital items, notably in the four items of the international securities movement.

General Conclusions from Questionnaire.

Despite the vast margins of error in these figures, it seems safe to make certain very general observations. (1) The ratios of the four amounts are presumed to be broadly accurate, and they chance to be about the same as in 1928. (2) Foreigners (including Canadians) dealt more heavily in American securities than Americans dealt in foreign securities. (3) America acquired, on balance, a rather important portfolio of foreign securities, " in small blocks," despite important repatriations of such securities. A considerable proportion of these must have gone to investment trusts, which grew so phenomenally during 1929. (4) Foreigners acquired, on balance, a portfolio of American securities about three times as great. (5) The net import of capital resulting from all such transactions in 1929, as in previous years, was very large—perhaps around $311,000,000.

In carrying forward the cumulative estimates of United States investments abroad by geographic divisions, the (adjusted) increase during 1929 resulting from items *a* and *b* of the international securities movement must be distributed. The following geographic distribution is adopted: Europe, 90, Latin America, 10; Canada and Newfoundland, 35; and rest of world, 11.

Notes on International Securities Movements in 1929

Many Americans are buying American issues in the London market, since profits made abroad on appreciation of stocks are not subject to the United States income tax. Besides there is only one brokerage fee to pay on brief fliers in London, if closed out within the settlement period. Transfers of funds resulting from this business are not great, since English and American brokers usually carry joint accounts.—Barron's Weekly, February 11, 1929.

It is estimated that of the 2,800,000 shares of Ford Motor Company (Ltd.) of England, offered in London about four months ago, about 2,500,000 shares have gravitated to this country—at prices up to four times the subscription price of £1.—New York Times, April 7, 1929.

Canadian exchanges have attracted an enormous volume of business from the United States in mining and oil stocks.—Market Letter, June 13, 1929.

Despite the decline in new foreign capital flotations during 1929, unusually numerous new foreign securities have been listed on the Amsterdam Bourse—including, in particular, American but also French, German, and Belgian stocks and bonds.—Assistant Commercial Attaché Paul S. Guinn, The Hague, July 16, 1929.

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[25] " The justification for this manipulation is not very secure."—The Economist, London, July 13, 1929. "A bold step, however, not without good reasons."—Wirtschaftdienst, Berlin, July 12, 1929.

A check up made among investment banking houses with international connections reveals that London and Berlin have been buying heavily of leading American securities. One house reports such foreign sales of the stock of a single American company amounting to over $20,000,000. French buying is restricted by the heavy tax on the income of foreign securities held in France, but a substantial volume of American securities is said to be held indirectly for French account.—Journal of Commerce, August 13, 1929.

Reports from Amsterdam indicate recent purchases of American stocks with a freedom resembling the occasional bursts of pre-war demand.—New York Times, August 19, 1929.

Brokers with foreign connections report a particularly heavy volume of foreign purchases of American railway shares. Many of these shares are held here in trust, others go abroad by fast boats. One banker predicts that, in the course of time, foreign holdings in our railways will be as large as before the war. Our industrials are less popular.—New York Times, August 29, 1929.

One of the favorite "American" investments of Australian companies has been the 4½ per cent Australian Government loan issue, which has been quoted at New York around 88. Leading investment brokers here declare that, judging from their own transactions such purchases may have exceeded £1,000,000 in recent months.—American Trade Commissioner E. C. Squire, Sydney, August 30, 1929.

The Berlin stock exchange has recently received important American orders, notably from investment trusts. Such orders had been rare for a considerable period.—New York Times, September 2, 1929.

It is indicated that the Bank of England has arranged with private British financial institutions to check the flow of investment funds to the United States * * * to avoid an increase in the bank rate. Whaley-Eaton Service, September 7, 1929.

During the first half of 1929 a considerable repatriation of Danish bonds resulted from weak bond prices in New York and London.—Commercial Attaché Sorensen, Copenhagen, September 30, 1929.

The stock crash of last week was primarily precipitated by foreign liquidation of American securities.—Washington Star, October 27, 1929.

The extent of British "distributing" of American securities prior to the stock-market crash is indicated by the swing of sterling from our gold-import point to our gold-export point between September 24 and October 24—this at a season when sterling is normally weak. The sum involved may have run into the hundreds of millions. This liquidation resulted from the Hatry panic in England.—Barron's Weekly, December 9, 1929.

Foreign orders of American securities are said to be coming from every important European country.—Wall Street Journal, November 1, 1929.

INTERNATIONAL MOVEMENT OF SHORT-TERM CAPITAL

The department's annual investigation of America's international banking accounts is regarded as perhaps the most important section in this survey—not because short-term capital imports have ever been the largest invisible item in our foreign dealings but because so little was known of them until a year or two ago. The figures reveal, accurately enough, United States indebtedness on short-term account and the importance of the United States in international banking. They show the huge amounts, and the distribution, of the world's holdings of dollar exchange. From the same figures we learn approximately how much short-term capital the United States money market has imported or exported during a given year. They show, also, the limited use that United States bankers make of the outside world when they have an excess of loanable funds. (See next table.)

United States Short-Term Borrower

In nearly all recent years the United States has borrowed on short term, while lending on long term. Phrased otherwise, there was a short-term "backwash" of our long-term capital exports. In

1929 the net inflow was, however, only about 13 millions[26] The net import of short-term capital since January 1, 1922, is estimated at about 679 millions as seen in the section herein on revised balances of payments, 1923–1929 Indeed, the sum may have been somewhat greater, for subtracting this net import figure from the net short-term indebtedness of the United States on December 31, 1929 (1,603 millions), the corresponding indebtedness figure on January 1, 1922, is found to be 924 millions This seems like a rather high figure, despite the "flights of capital" into this country in 1921, for the unusual mercantile credits of the United States to foreigners prior to the world depression of 1920–21 had not yet been fully liquidated At the end of 1929 short-term foreign funds in the United States totaled 3,087 millions, from which might be deducted the 1,484 millions of American short-term funds abroad

The increase since 1921 followed such developments as the "flights of capital" from depreciating currencies, the growth of an American bill market, the internationalizing of the dollar, and the large increase in our "internation turnover" Central banks have judged this to be the safest gold-standard market in which to keep their foreign-exchange holdings Long-term borrowers from America often build up by degrees the huge sums of dollar exchange needed to meet their dividend, sinking-fund, and bond-redemption maturities

UNITED STATES EXPORTS AND IMPORTS OF SHORT-TERM CAPITAL IN 1929

[In thousands of dollars]

Short term loans outstanding	Dec 31, 1928 (revised)	Dec 31, 1929
DUE FROM "FOREIGNERS"[1]		
1 American deposits with foreigners	198, 588	189, 740
Short-term loans to foreigners		
2 Liabilities of American banks for unmatured bills drawn by foreigners and accepted by American banks[2]	508, 822	768, 942
3 (Estimated amount of liabilities[3] of American banks for unmatured bills drawn by Americans to finance American exports and accepted by American banks, respectively, 371,907 and 423,826)		
4 Overdrafts by foreigners	255, 373	202, 348
5 Other short-term loans and advances	318, 762	285, 460
6 American short-term funds "put out" (in foreign money markets)	24, 077	37, 357
Total short-term funds due from abroad	1, 305, 622	1, 483, 847
DUE TO FOREIGNERS		
7 Foreign deposits with Americans	1, 580, 481	1, 652, 858
Short-term borrowings from foreigners		
8 Outstanding volume of unmatured bills drawn by American banks and their customers, accepted abroad and discounted there (as estimated)[4]	93, 356	72, 238
9 (Outstanding volume of American guarantees of acceptances executed by foreign banks for the account of American importers,[5] respectively, 52,653 and 33,799)		

[1] The foreign branch of an American bank is a foreigner, an American branch of a foreign bank is an American

[2] Regarded as an offset to foreign deposits in American banks

[3] These represent American loans to American exporters The credit extended to foreigners is regarded as mercantile credit (relating to invoice terms) rather than as international banking credit

[4] Regarded as an offset to American deposits in foreign banks

[5] Like item 3, these loans relate to mercantile credit rather than to banking credit

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[26] There was a net outflow of 58 millions, if items 3 and 9 in the table were included in the totals Those items are assumed to be included in the estimated "Changed year-end lag in invoice terms"—a good assumption in 1928 and an extremely poor assumption in 1929, judging from comparisons of the two figures

[In thousands of dollars]

Short-term loans outstanding	Dec 31-1928 (revised)	Dec 31 1929
DUE TO FOREIGNERS—continued		
7 Foreign deposits with Americans—Continued		
Short-term borrowings from foreigners—Continued		
10 Overdrafts by American banks	36, 297	24 550
11 Other short-term borrowings	10, 855	294
Foreign funds "put out" (in the American market)		
12 Into American acceptances	564, 601	891, 132
13 Into brokers' loans	332, 888	270 627
14 Into Treasury certificates	166 319	61 827
15 Into other short term loans	12, 176	8, 817
16 Undiscounted foreign drawn acceptances Held for collection by American banks [6]	99, 247	104, 938
Total short term funds due to foreigners	2 896 220	3 087, 281
Net short term indebtedness to foreigners on banking account	1, 590, 598	1, 603, 434

[6] A corrective entry offsetting item 2 of the statement

Source Finance and investment division, U S Department of Commerce, based on returns from 191 leading international banking houses located in American cities, including the 12 reserve banks, all large private bankers, investment trusts, and the principal foreign banking agencies here No figures were raised for omissions

In the preceding table the year's net inflow resulted from an increase of 191 millions in foreign funds in this country, against an increase in American funds abroad of 178 millions Either figure is, however, rather meaningless Item 16 should be subtracted from item 2; and the remainder might be subtracted from item 7 Likewise item 8 might be subtracted from item 1 Other alterations in the arrangement of the figures might be desirable for special purposes

Results Based on Revised Questionnaire

Our bulletin for 1927 reported the collapse of the questionnaire used in 1926 and 1927 Such questions as it carried were too general; there were too few lines for items and too few explanatory notes, and it did not catch acceptance transactions at all

The revised questionnaire now used was based primarily upon interviews with perhaps 20 bank accountants and bank economists in New York. Thereafter there were numerous conferences and a heavy correspondence with Federal reserve officials, particularly upon the effect of certain international acceptance transactions upon international indebtedness The assistance of E L Smead, chief of the division of bank operations of the Federal Reserve Board, in framing the questionnaire is specially to be acknowledged. Again, this year, Dr W Randolph Burgess, assistant reserve agent at New York, directed much of the follow-up work in obtaining returns Copies of the revised form of questionnaire are available upon request

This year's returns are more accurate than last year's, notably as regards foreign funds in brokers' loans. A year ago several important foreign banking agencies had reported as "foreign deposits in American banks" all funds received from their head offices, although most of the funds had been "put out" into brokers' loans, the error did not, however, alter the net indebtedness of the United States as shown in the table Several lesser errors as of the end of 1928 were admitted by the reporting banks and corrected this year When a bank's figure for any item as of the end of 1928, as reported this year, differed by as much as $500,000, an explanation was requested; invariably the discrepancy was found to be the result of errors in last year's report The list of reporting banks has been expanded and is now so complete that omission estimates seem unnecessary Reporting institutions in New York City now number exactly 100 There are 191 reporting institutions in all, as compared with 188 last year, but there was fully a score of mergers during the year, usually of banks already on our list These various changes necessitated a revision of the figures as of December 31, 1928.

Record High Foreign Holdings of Acceptances.

At the end of 1929 foreign short-term funds "put out" into bankers' acceptances (chiefly at New York) reached the stupendous total of $891,132,000 Most of these holdings of dollar acceptances by foreign central banks and others are shown in the weekly statement of the Federal reserve banks, as "contingent liability on bills purchased for foreign correspondents" At the end of 1929 that item was $547,962,000 Most of the remaining foreign-held acceptances were acquired through about eight large New York banks, each of which recorded an increase during 1929.

Bankers' acceptances outstanding in the United States at the end of 1929 totaled $1,732,463,000, a record high for all time, according to the American Acceptance Council Foreign banks had thus bought up, as short-term investments, 51 4 per cent of that record total

Increase in Foreign Deposits Here.

The colossal sum of foreign deposits in this country is no longer news While theoretically foreigners might withdraw them almost overnight, they can not in fact do so Many of these deposits are part of the cash reserves of the approximately 30 central banks that legally count foreign-exchange holdings as cash reserves At the end of December the Bank of France alone had the equivalent of a flat billion dollars thus held in various foreign countries Many of the deposits are required by individual long-term foreign borrowers in preparing to make payments to American holders of their securities on account of dividends, sinking funds, or bond redemptions Other deposits are required by thousands of banks abroad, each of which must stand ready to sell dollar exchange to its customers, in an aggregate volume of about a billion a month The high degree of immobility in these deposits by foreigners is suggested by the fact that during 1929 they actually increased by $72,000,000—in a period when foreigners became so currently indebted to us, on balance (because of our reduced long-term lending), that they were compelled to ship us $175,000,000 net of gold

Press Notes on Short-Term Capital Movements in 1929

Ordinarily the January reaction in money rates and the consequent recall of foreign money bring a decided rise in sterling —New York Times, January 2, 1929

The further increase in bankers' acceptances * * * from 5⅛ to 5⅜ per cent * * * is a bearish factor on exchange, as dollar acceptances are powerfully attractive to European short-term funds at current rates French francs have moved lower, due to transfers of funds from Paris to other centers, including New York Italian lire have been decidedly weaker, and this condition is attributed largely to * * * continued firmness of money rates in New York Relatively there is a money stringency in Holland created very largely through the transfer of funds from Amsterdam to other markets, which has been going on for some time —Commercial and Financial Chronicle, February 16, 1929

Probably about a billion dollars is now loaned by foreign banks or bankers to brokers in New York City on Stock Exchange collateral —New York Times, February 20, 1929 (The statistics of the Department of Commerce show this estimate to be exaggerated)

Foreign funds have gone out of the New York market in substantial amounts since the advance in the discount rate of the Bank of England a month ago —New York Times, March 6, 1929

There were evidences yesterday that foreign interests were placing substantial amounts of funds at the disposal of the call loan market here —New York Times, April 4, 1929

Misgivings during the recent "currency crisis" frightened depositors in German savings banks into buying dollars —New York Times, July 15, 1929

Yesterday's buying of American bills for foreign account was thought to have been one particular case of a large shifting of funds from London, Paris and Berlin, due to uncertainty as to the fate of the Young plan —Journal of Commerce, August 13, 1929

It is estimated that deposits of French funds in New York banks at present amount to $900,000,000 —Guaranty Survey, August 26, 1929

High money rates in this country in all branches of the money market are acting as a magnet to draw funds from all parts of the world —Commercial and Financial Chronicle, August 31, 1929

France is replacing England and America in providing short credit for Germany —New York Times, September 2, 1929

Dollar exchange continues to decline, owing to the very large withdrawal of European balances from America Estimates of this recall of European capital from Wall Street range from $50,000,000 up to $100,000,000 —New York Times, October 29, 1929

Fleeing from our easing money market and deflated stock prices, European money is rushing home —New York Times, October 27 1929

While foreign funds flowed from New York in substantial quantities during the stock market collapse here, * * * there has been a considerable return flow of foreign funds to New York for investment Current call money rates of 6 per cent are still sufficiently high to warrant placing foreign funds on call in New York —Barron's, November 11, 1929

In the first half year * * * there was a shift from holdings of governments to holdings of bankers' acceptances on the part of foreign buyers in this market * * * In November the Federal reserve system holdings of bills declined rather than increased because of the large outside (foreign) demand for acceptances —Review of Economic Statistics, February, 1930

There is a natural tendency for this country [England] to overlend on short-term account to such countries as the United States and Germany —The Statist, December 14, 1929

Wall Street was filled with ideas of a vast inpour of outside and foreign money (for brokers' loans), forgetful apparently that * * * if outside and foreign money was pouring into Wall Street, * * * New York deposits should show a corresponding increase Actually this increase was surprisingly small (Carl Snyder, chief statistician, Federal Reserve Bank of New York)—Financial Chronicle, January 4, 1930

SILVER AND GOLD EXPORTS AND IMPORTS

Silver.

From the modern American standpoint, silver is a small but staple merchandise export In occasional years, as in 1922 and 1923, our silver imports have exceeded our silver exports, but the average annual excess of silver exports during three recent 5-year periods, 1911–1915, 1916–1920, and 1921–1925, were $23,000,000, $79,000,000, and $10,000,000, respectively

During 1929 our total exports and imports of silver were, respectively, $83,407,000 and $63,940,000 Of the imports, about $51,000,000 came from Mexico and Peru, and of our exports, about $71,000,000 went to China and India Most of our silver trade in recent years has passed through these channels, but since India adopted its "gold-bullion" standard in 1926–27, China's portion of our total exports has risen and India's has fallen.

General Observations on International Gold Movements

The following is an excerpt from last year's survey

> The official statistics of our imports and exports of gold and silver may be considered as closely accurate Both these metals, as well as the ores from which they are produced, are on the free list Some estimating is involved as to the actual gold and silver contents of such ores in our foreign trade as contain two or more metals, but there is apparently no incentive to inaccuracy in this estimating Possibly in past years some gold was smuggled into the United States, to avoid all records of infringements of gold export embargoes in foreign countries, that such a practice is an important item now is doubted Tourists may carry out a small quantity of gold, in the aggregate, but they are much more likely to take American paper currency, for various reasons
>
> Some of the gold imported is received on deposit, or for conversion into foreign exchange and some of our gold exports are withdrawals of deposit Particularly in past years, whenever a foreign central bank found that its gold stocks exceeded the minimum reserve against its issue and deposits it was likely to deposit the excess gold in an American bank Indeed, in certain countries the central and other banks are permitted to carry part of their minimum gold reserves in foreign exchange[27] Such a deposit draws interest, whereas if the gold is held in the foreign banks, it is an unproductive asset Our country being most firmly on the gold basis, foreign banks run no risk here of being confronted by a gold embargo, should they have need to withdraw their gold This consideration seems to outweigh the fact that our interest rates are usually lower than those of most gold-standard countries With this strictly deposit business going on, and with the present immense operations in international credit, both short-term and long-term, it is evident that neither do international gold shipments reflect exclusively the settlement of international accounts, nor are they so important as formerly in the settlement of such accounts
>
> That gold movements can not be predicted (except when it is known that foreign countries are about to collect gold for their vaults) should be accepted as an axiom Gold is ordinarily shipped to settle the balance of international indebtedness A prediction of this balance would require the compilation of a balance of international payments for a future period, and even for a past period several capital items can not be estimated within $100,000,000

A feature of American gold movements is the regular importation of "gold ore and base bullion," chiefly from Canada, Mexico, Peru, and Ecuador In the four years ended with 1929, these importations averaged about $18,000,000 a year, in the preceding four years they averaged about $22,000,000 This commodity movement is included in the total figures of American gold imports as usually published, but separate figures on it are obtainable monthly from the Department of Commerce

The "Redistribution" of American Gold.

Between 1915 and 1923, inclusive, United States net imports of gold totaled $2,155,000,000 Nearly a billion of this inflow came during 1915 and 1916 and about $900,000,000 of it came in 1921 and 1922 During this 9-year period there was a net inflow in every year but 1919

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[27] For a list of 24 such central banks, see Federal Reserve Bulletin, August, 1928, p 563

Since January 1, 1924, there have been several violent reversals of the gold movement Of special note was the mighty net outflow of $577,000,000 during the 11 months ended with July 31, 1928 During that outflow there was much discussion of the "redistribution of American gold" to nations resuming the gold standard During the 5-year period ended with 1929, however, there was no such redistribution Although total United States exports and imports of gold totaled $2,649,000,000 during the five years, the two sides of the account were within 13 millions of exact equilibrium Throughout the period, dollar exchange (our international currency) was subject to numerous and violent fluctuations

American Gold Movements in 1929.

Gold movements do not fit neatly into calendar-year periods The past year opened in a period of strong inflow, which had begun slowly in August, 1928, and had gained momentum The inflow continued far into October, 1929 During those 15 months the United States regained $307,000,000 (net) of the $577,000,000 (net) of gold exported during the previous 11 months

The principal reason for the inflow was the reduction in United States underwriting of foreign bonds, which resulted chiefly from the sharp rise in money rates here as stock-market speculation proceeded The flotation of foreign-government bonds during 1929 was less than one-fourth the previous year's volume Furthermore, the rise of money rates here, especially on brokers' loans, brought some foreign short-term capital into the country, and at the same time foreigners (notably Canadians) were sending funds here for stock-market speculation During the nine months ended with September, United States net export of capital seems to have been about $470,000,000 [28] less than during the like period of 1928 Despite the reduced credit to countries abroad, our favorable trade balance actually increased slightly (by $6,000,000) It was the sharp reversal of the gold movement, principally, that settled the accounts

In November and December, 1929, gold again moved outward at a most unusual rate Net gold exports in November and December were, respectively, 23 and 64 millions Stock-market developments were responsible Well before the first crash in security values, which occurred on October 23, British holders of American securities began heavy selling, in connection with the Hatry crisis in England This selling was sufficiently heavy to swing sterling exchange from our gold-import point to our gold-export point between September 24 and October 24, and it is supposable that continental holders of "Yanks" also sold heavily and withdrew the proceeds Likewise a certain amount of foreign funds in brokers' loans at New York are believed to have been called or released and remitted abroad The outward gold movement ended with December, in January, 1930, there was again an inflow, though a negligible one

CHANGES IN EARMARKED GOLD

The following is an excerpt from last year's survey

> The central banks of almost all countries keep on hand a certain quantity of gold, in the form of coin and bullion, in their own vaults, but may in some

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[28] See The Annalist, Nov 22

cases hold gold abroad The laws under which these banks operate very generally prescribe certain minimum ratios of gold holdings to the notes of the bank or to its notes and deposits Where these laws permit gold held abroad, as well as gold in vault, to be counted as reserve, the bank need not actually import the metal in order to increase its gold reserve Thus a bank holding foreign exchange—in the form of deposits in foreign banks, acceptances payable in foreign currencies, etc—may convert this asset into gold in that market or some other, and instead of having the gold shipped may hold it abroad, for a longer or shorter period, under earmark—that is, in the custody of its foreign correspondent but segregated and marked in such manner as to indicate that the identical coins or bars earmarked are the bank's property and altogether subject to its disposal It is not the practice of the Federal reserve banks to count as reserve any gold held abroad, but when they have come into possession of gold abroad, at a time when they held ample gold at home, they have sometimes had it earmarked there, largely in order to save the expense of shipping to the United States gold that might later require reshipment

Before 1927 little was publicly known of the amounts of gold involved in earmarking operations The Federal Reserve Board now regularly issues statistics on the subject, so does the Federal Reserve Bank of New York The accompanying table summarizes by years the earmarking operations of the Federal reserve banks for the past nine years From the figures given entries are made directly in the table of international payments

INCREASE OR DECREASE (—) IN AMERICAN GOLD STOCK THROUGH CHANGES IN GOLD UNDER EARMARK FOR FOREIGN ACCOUNT

[In thousands of dollars]

Month	1921	1922	1923	1924	1925	1926	1927	1928	1929
January	3, 990		−1, 629		−810	−6, 043	19, 487	5, 500	−65 0
February	−1, 990		4 329	593	−1, 366	−11, 000	3, 180	2, 900	
March				−2, 452	−6, 825	−22, 988	−1 502	35, 800	7 5
April			1, 000	−558	14, 850		−1, 000	45, 700	48 6
May				1, 000	12, 725		−95, 000	−26, 500	16 1
June	−3, 000			2, 000	5, 075	−580	−500	30 100	−7 5
July	5, 000		−1, 500	−2, 583	−3, 901	4, 000	184	60, 900	−22 0
August				−7, 984	8, 725	19, 200	−2, 501	5, 900	−1 0
September	10, 000		500	−13, 229	901	−2, 400	−9, 000	−1, 200	−6 6
October	8, 000	−1, 500	−2, 000	−17, 000	2, 870	4	−25, 001	1, 200	−4 5
November		−200		−500	2, 000	−7, 498	−40, 000	−25, 000	1 0
December		−2, 000		−1, 500	−2, 000	1, 008	−8, 500	−15, 700	−22 0
Total	22, 000	−3, 700	700	−42, 213	32, 244	−26, 297	−160, 153	119, 600	−55 4

Source Federal Reserve Bulletin

Any net increase in gold earmarked for foreign account in United States banks during a given year must be counted in our balance of payments for that year as an invisible export of gold—for which Americans have received payment in some form from foreigners, usually through a reduction of foreign deposits in United States banks Conversely, when gold abroad is earmarked for American account, there is an invisible import of gold into the United States, for which Americans have surrendered cash values to foreigners Gold released from earmark here is usually exported, when this is the case it must be counted as a deduction from the visible exports of the period in which it is released, since it was previously paid for

The table pertains only to changes of "gold under earmark for foreign account" in the United States The per contra transactions, gold abroad earmarked for American account, have been rare There was no gold so earmarked at the end of any recent calendar year

United States currency held abroad might be regarded as a capital item, since it is practically a noninterest-bearing investment of foreigners in American values After the armistice there was a considerable investment in United States currency by residents of countries with rapidly depreciating exchange, who were willing to forego interest for the sake of security, but this movement seems to have come to an end, in most countries, in the early part of 1924 When so used, shipments of currency resemble shipments of stocks and bonds As elsewhere stated, however, a change in the value of our foreign investments made in previous years does not enter our balance of payments, except in so far as the change alters the money yield of those investments during a particular year Accordingly, our present interest in the international movement of United States currency arises from the fact that it is one of the two "pure cash" items, the other being gold

Statistics from Selected American Banks.

These official surveys since 1923 have contained figures on the item, based on replies to monthly questionnaires sent by the Federal reserve bank at New York to about 15 large banks in the city, known to be interested in currency shipments The reserve bank concluded that during 1923 paper-currency shipments to Europe by these banks exceeded receipts by about $25,000,000, that during 1924 the movement was reversed, with a total excess of receipts of $49,000,000, disregarding shipments to and from Cuba through the reserve bank at Atlanta, which nearly balanced These New York banks, together with the Atlanta Reserve Bank, showed excesses of currency receipts of $62,000,000 in 1925, $41,000,000 in 1926, $63,000,000 in 1927, $60,000,000 in 1928, and $49,000,000 in 1929

Available Statistics Merely Suggestive.

No sound estimate is ordinarily possible from the statistics of the 15 or 16 selected banks in the United States Other banks in various parts of the United States, particularly along the Canadian frontier, receive United States currency from abroad, and may ship it abroad Each immigrant alien admitted to the United States is required to "show" a minimum equivalent of $25 (usually in dollar bills), and Canadian and other foreign tourists bring unknown sums with them Most American tourists and returning immigrants finance themselves abroad partly with dollar paper currency, our immigrants mail it back to the "old country," and our Navy and merchant marine distribute it throughout the world An excess of currency receipts by the selected American banks is to be expected, because foreign banks gather up the bills distributed by American tourists and others—to ship them back, in bulk, to American banks

The statistics have merit, nevertheless While they show somewhat heavier excesses of receipts in 1925 and 1927 (gold-export years) than in 1926 (a gold-import year), they show heavier receipts after the American tourist season They show, also, comparatively light receipts from Belgium, France, and Italy during the sharp depreciation of the "three franc exchanges," between February and July, 1926; and, similarly, they reflect the absorption of dollar paper money by Russia in recent years The excess of outgoing shipments prior to early 1924 indicated the magnitude of the "currency investments" during that period Furthermore, the extremely high receipts in 1924 and 1925 probably resulted from the partial "thawing out" of those investments—particularly in Germany after the adoption of the Dawes plan—as the receipts from Germany indicate There may have been a further general thawing out in 1926, 1927, and 1928, but no one can say whether it was more or less important than the further absorption by Russia, Cuba, and Canada; so no estimates of the net movement were made None is made for 1929

Countries Which Still Absorb Dollar Currency

Early in 1925 the Canadian dollar recovered parity after the long strain of war financing Since that recovery Canadians have had less incentive to return to us United States currency left in Canada by American tourists and others, and our tourists' expenditures have increased rapidly Many Canadian localities have become so well acquainted with United States currency (accepted from American tourists usually at par) that a large volume of it remains in circulation Americans, on the other hand, have become but slightly acquainted with Canadian currency, which is usually accepted at discounts and is quickly returned to Canada by United States banks Throughout 1929 Canadian exchange was at a low discount, dropping to a maximum of about 2¾ per cent in the autumn This undoubtedly forced back to this country many millions of paper money

United States currency is legal tender in Cuba, Panama, and the Dominican Republic, and it is generally accepted at par throughout most of the West Indies and Central America There is a special tendency for it to remain in circulation in Lithuania, whose national coin is equal to one-tenth of a dollar

Commercial Attaché Frederick Todd at Habana reports that the total of United States paper currency in Cuba at the end of 1929 was not far from $109,000,000, or $13,000,000 less than one year earlier The amount thus held in Cuba is "the most direct gage of the business turnover in Cuba * * * When business slackens and American currency accumulates in the bank vaults, the foreign-exchange experts of the bank invariably transfer everything they can spare to New York, in order to loan it out there"

Russia has become a "sink" for American paper currency, for reasons well understood In the last three calendar years Russia has received $12,010,000 of dollar currency shipments from the 15 New York banks and returned less than $230,000 by this channel Probably Russia has retained most of the dollar currency received from its emigrants to America or in other direct ways and has absorbed additional sums obtained indirectly from Europe

Comparative Balances of Payments, 1923–1929.

The finance and investment division has issued a survey of the balance of payments to cover each calendar year beginning with 1923 Each year the scope of the survey has been extended, and the methods of estimating and classifying the various items have been improved; but these improvements were made at the cost of comparability In compiling the table below uniform methods were used so as to make the surveys more comparable Those for 1928 and 1929 are strictly comparable, and those for the preceding five years are comparable one with another, but such further improvements in method as were adopted in the present survey were not applied to years prior to 1928

The condensed table is derived from itemized statements containing more than five times as many entries Such itemized statements were originally prepared in the summer of 1928 by the present compiler in connection with the nation-wide investigation of recent economic changes in the United States, but important revisions have been made since then

BALANCES OF INTERNATIONAL PAYMENTS OF THE UNITED STATES, CALENDAR YEARS 1923–1929, A CONDENSATION OF REVISED ESTIMATES

[In millions of dollars]

Class of transactions (gross or net)	1923	1924	1925	1926	1927	1928	1929 (unrevised)
COMMODITIES (ADJUSTED)							
Exports	4, 368	4, 834	5, 177	5, 044	5, 091	5, 333	5, 490
Imports	4, 162	3, 952	4, 544	4, 766	4, 508	4, 483	4, 756
Balance of trade (adjusted)	+206	+882	+633	+278	+583	+850	+734
MISCELLANEOUS INVISIBLE ITEMS							
Freights Ocean, Great Lakes, and railway (net)	−83	−64	−84	−95	−66	−80	−115
Expenditures by American tourists							
Canada and Mexican frontier	−131	−159	−185	−201	−231	−288	−322
Overseas	−313	−374	−400	−422	−465	−516	−517
Expenditures by foreign tourists in United States	+104	+107	+112	+148	+163	+163	+180
Ocean borne passenger traffic [1]	+60	+53	+63	+69	+89	+89	+94
Interest on American private funds abroad (long and short term)	+594	+635	+689	+740	+800	+893	+976
Interest on foreign funds in United States (long and short term)	−180	−192	−229	−268	−281	−359	−414
War-debt receipts (principal)	+92	+23	+26	+35	+46	+50	+62
War-debt receipts (interest)	+167	+160	+160	+160	+160	+157	+145
Other governmental transactions (net)	−66	−53	−61	−49	−29	−57	−92
Immigrant remittances (net)	−229	−229	−235	−218	−206	−225	−223
Charitable and missionary contributions	−70	−55	−50	−46	−49	−51	−49
Other items (net) [2]	+57	+68	+74	+74	+74	+24	+25
Total, commodity and miscellaneous (net)	+208	+802	+513	+205	+588	+650	+484
NEW PRIVATE LOANS, INVESTMENTS, AND DEPOSITS							
Net increase in American long term investments abroad (par value)	−258	−869	−872	−808	−972	−1, 318	−808
Deduct bond discounts and underwriters' commissions on above	+48	+125	+119	+121	+119	+122	+26
Net cash payments for above	−210	−744	−753	−687	−853	−1, 196	−782
Net increase in long-term foreign investments in United States	+240	+11	+193	+147	+158	+488	+396
Change in net debt of American banks to foreigners	+3	+216	−61	+359	-------	−226	+13
Net capital movement (long and short term)	+33	−517	−621	−181	−695	−934	−373
OTHER BALANCING ITEMS							
Gold shipped or earmarked (net)	−295	−216	+102	−72	+154	+272	−120
Shipments of American paper money (net)	+50	−20	−30	-------	-------	-------	-------
Add for net discrepancy due to inaccurate figures [3]	+4	−49	+36	+48	−47	+12	+9

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[1] Largely a deduction from American tourist expenditures overseas

[2] Includes insurance, motion-picture royalties, cable charges, Canadian electric power, press subscriptions, patents and copyrights, and advertising

[3] Each of these net discrepancies was two and one half times as large in the preliminary revision Thus there was a change from −119 in 1926 to +118 in the next year—a total range of error of 237 Such a range of error being hardly admissible in the "current" items, it was presumed that most of the original net discrepancies, in those two years at least, resulted from errors in the four "capital" items known to be least reliable Therefore, the revised estimates of those four items were all altered according to uniform ratios which would eliminate 60 per cent of each year's preliminary net discrepancy This is a partial acceptance of the British method of deriving capital-movement estimates from estimates of the current items

Dominance of Merchandise and Credit Transactions.

The following is excerpted from last year's survey

> The largest group of invisible items is, of course, new loans, investments, and deposits Moreover, the yield of previous credit transactions is the largest invisible export When it is seen that in absolute amounts commodity transactions constitute about half of the international turnover, one realizes the extent to which commodity and credit transactions dominate our balances of payments Small wonder that economists so often base themselves on a ' two-cylinder " balance of payments consisting of only these two large items
>
> The importance of the invisible items appears when it is realized that it is the balance, not the total, of an item or group of items which influences the movement of other items The balance of trade is sometimes less than net tourist expenditures or than net yield of investments In two of the years even war-debt receipts exceeded the net export of private capital It is the magnitude of these various invisibles, on balance, which upsets popular conceptions of our dealings with foreigners

The "Big Three" Variants.

In recent years the balance of the "miscellaneous invisible items," taken as a group, has been relatively stable The reason for this stability is that, while most of the items in the group have shown a definite trend upward or downward, the trends have been mutually offsetting to a great extent—a result perhaps best ascribed to coincidence From the table on pages 56 and 57 of last year's survey it is found that (1) the average annual change of the net balance of this group was only 72 millions during the five years ended with 1928 and that (2) the range in the annual fluctuations was between 40 and 112

The remaining three groups of items in American balances of payments—pertaining to merchandise, capital, and gold—are the important variables Net capital exports have had an average net annual change of 375 millions during the five years and a maximum range of 990 millions (between 1924 and 1927) The trade balance has had an average net annual change of 374 millions and a maximum range of 963 millions (between 1924 and 1928) Gold movements, including earmarking operations, have had an average net annual change of 183 millions and a maximum range of 492 millions (between 1924 and 1926)

It follows that the net export of capital from the United States during any of the five years covered could have been computed rather closely about six weeks after the close of the year, when the December figures of merchandise and gold movements became available Indeed, in none of the last four years covered, would the error have been as much as 60 millions, when estimated "lag in merchandise accounts" is considered The preliminary estimate (including that lag) of net capital exports for 1929 would have been 416 millions, the final estimate, as noted in the table, was 373 millions This elliptical method, being based on net changes, is of value only for comparisons, however, unless the net export of capital of the previous year was computed with scientific care

PURPOSE AND METHODS OF BALANCES OF PAYMENTS

In form our international balance of payments is a sort of conjectural cash account of the America's foreign transactions The credit column is supposed to contain all cash claims by Americans against foreigners actually honored during the year, while the debit column contains the corresponding cash claims by foreigners against Americans Most of these cash claims offset and are canceled by foreign-exchange operations, the uncanceled balance is settled by international shipments of gold and currency Thus, if one should set out to show by a table just why we imported or exported so much gold during a given year, he would end with an American balance of international payments Since gold shipments normally result from wide fluctuations in foreign exchange, one would end with the same kind of statement by investigating dollar-exchange fluctuations

Definitions

A balance of payments is a tabulation of all known or estimated transactions between two areas which tend to influence the movement of gold or other accepted currency between the two areas during a given period

In content however, the itemized account so constructed would be much more than an analysis of the gold movement, as the following alternative definition shows

A balance of international payments is a statement of the compiled or estimated amounts of all the invisible and visible exports and imports of a country during a given period so arranged as to show their comparative size, their total (the international turnover), their influence upon the international gold movement, the "detractive" and "promotive" relationships between them, and the volume and character of the nation's foreign-exchange transactions[20]

Our Balance-of-Payments Area

In the present survey the geographic limits of the United States are coterminous with those used in the official statistics of our foreign trade in merchandise They include continental United States, Alaska, Hawaii, and Porto Rico They exclude the Philippines, the Panama Canal Zone, Guam, Samoa, and Virgin Islands, these are counted as foreign countries

Visible Versus Invisible Trade

An invisible export is whatever thing or "satisfaction" a country parts with, or whatever service it renders, in any international transaction which tends to move an equivalent amount of money into the country within a given period, but which is not recorded in the customs statistics of that country An invisible import can be defined accurately only in similar terms

There are only three visible items of American foreign trade—merchandise, silver, and gold Many countries count silver as merchandise, and hence have only two visible items

The number of invisible items of American foreign trade is variously computed There are no less than 20 by any ordinary method of counting, and it is possible to count well over 50 of them For example, "United States Government international receipts and expenditures" constitute one invisible item, or two invisible items, a credit and a debit, or about a dozen different invisible items like "Receipts from Panama Canal," "Disbursements by Veterans' Bureau," etc

The amounts of several of the invisible items are known as accurately as the amounts of the visible items The amounts of other invisibles are broad approximations expressed in precise figures partly for identification Fine exactitude is impossible even in the statistics of values of merchandise exports and imports

Why Credits Are in the Left-Hand Column.

Many persons inquire why the credit column is at the left of the debit column The real reason is one of tradition, the Britons who first compiled balances of payments arranged the columns that way—perhaps because British bookkeepers in compiling ordinary balance sheets have always reversed the columns, putting the credit (asset) column left of the debit (liability) column About 30 other countries have adopted the practice in their balances of payments

Two reasons exist for continuing this tradition (1) The United States Government statistics of foreign trade show exports before imports, (2) a balance of payments is a cashbook showing receipts and payments of foreign exchange, in an ordinary mercantile cashbook receipts are entered on the left side

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[20] One falls short of the meaning of our balance of payments if he fails to realize "that it is largely a review of American national life, a record of the Nation's international social activities, a reflection of many national habits and customs, and in some degree a measure of our international policies and politics" (George A Anderson in the American Bankers Journal, September, 1927)

"The reckoning of any country's balance of payments in its dealings with the rest of the world is perhaps the most important single computation in the entire field of its international economic relations" (Herbert Hoover)

The Accounting Viewpoint

As in a trial balance in ordinary bookkeeping, every item of balance of payments is a balancing item Omit one item and the two columns will be out of equilibrium by the amount of that item, assuming that there are no errors or omissions Gold shipments are usually spoken of as the balancing item, but the United Kingdom counts them as ordinary exports and imports and establishes equilibrium in its balance of payments with the "balance remaining for overseas investment"

Gold shipments are the settling item in international transactions, but they are not necessarily the balancing entry in a balance of payments For one thing, they are not carried forward into the next year's statement We could not begin our balance of payments with "gold stock of the United States on January 1" and establish equilibrium in the statement by entering in the opposite column "gold stock of the United States on December 31", for our gold stock is altered by domestic production and by domestic consumption in the fine arts

In a balance of payments gold shipments count only as shipments of highly salable merchandise Changes in international banking accounts—the reservoirs of foreign exchange—are, more properly, the balancing entries This very useful point of view is illustrated by the following imaginary balance of payments, which assumes that there is no discrepancy due to errors and omissions

Imaginary Balance of Payments, Equilibrium Assumed to be Established and all Items Settled by Changes in International Banking Accounts

Dollar exchange relinquished to us by foreigners and for what purposes, and/or foreign exchange acquired by us and how we got it	Millions of dollars	Dollar exchange acquired by foreigners and how they got it, and/or foreign exchange relinquished by us and for what purposes	Millions of dollars
CREDITS		DEBITS	
Merchandise, favorable balance of trade	548	Excess of foreign short-term funds in the United States over American short-term funds abroad (brought forward)	1,000
Interest on American investments abroad	720	Freight	33
Miscellaneous items	69	Tourist expenditures	528
Excess of foreign short term funds in the United States over American short term funds abroad (balancing entry carried forward)[1]	1,100	Immigrant remittances	206
		Charities and foreign missions	5
		Loans to foreigners, long term	569
		Gold imports	96
	2,437		2,437
		Excess of foreign short term funds in the United States over American short term funds abroad (brought forward)	1,100

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[1] If one regards gold as the international currency (and net gold shipments as the balancing entry), this tem would be entered at 100 as "Net change in international bank accounts", and it would not be carried orward into the next period

Barter and Purchasing Power

A balance of payments has been shown to be a survey of foreign-exchange transactions, an investigation of gold movements, a cashbook of dealings with foreigners, and an analysis of the financing of our foreign trade or of the effect of our foreign loans At least two other view points are useful (1) Economists of the last century generally regarded international trade as barter In this light, a balance of payments becomes two lists of goods and services exchanged in barter (2) In terms of the "law of detractions and promotions," a balance of payments itemizes international transfers of purchasing power The debit footing shows the extent to which the United States contributed to the purchasing power of the outside world, the credit footing shows the extent to which our dealings with foreigners have increased our purchasing power

Detractive and Promotive Influences

Alternative statements of the "law of detractions and promotions" follows [30]

A "When the outside world takes more of a particular export (visible or invisible), it can acquire the foreign exchange with which to make settlement only by importing less of some other visible or invisible and/or by inducing the exporting area to import more of some visible or invisible"

B "The increasing of a particular item of export (visible or invisible) tends to reduce all other items of export and to increase all imports, the increasing of a particular item of import tends to reduce all other imports (visible or invisible) and increase all exports, the reducing of a particular item of export tends to increase all other items of export and to reduce all imports; and the reducing of a particular item of import tends to increase all other imports and reduce all exports"

War-debt receipts, which are (or rather involve) an invisible export, afford an interesting, important, and fairly new illustration of the law If this invisible export reduces the purchasing power of the taxpayers of the debtor nations and thereby reduces our export of merchandise, there is a detractive influence by one export item upon a second export item (merchandise) If the large savings to American taxpayers [31] resulting from these Treasury receipts be devoted either to increasing our merchandise imports or our invisible imports (our loans to foreigners, tourist expenditures, immigrant remittances, foreign charities, etc), there is a promotive influence by one export item upon several import items These two influences are exerted by every balance-of-payments item

The effect of tariffs (or of other restrictions of our international trade, travel, or loans)—whether imposed by this Government or by a foreign government—can be analyzed by this simple formula Whatever tends to diminish an item in one column of the balance of payments tends to promote every other item in that column and to detract from every item in the other column

It is often said that imports (visible and invisible) must be paid for with exports (visible and invisible) This is true of totals, but because of the detractive influences, it is untrue of an individual item One item of import may be increased by importing less of something else To detract is to substitute All credit items in the balance of payments are rival commodities (like radios and phonographs in domestic trade), and so are all the debit items Again, the credit items, as a group, create what economists call a "composite demand" for the debit items, and vice versa

The detractive and promotive influences may operate on any or all of four planes (1) Through the invisible export and import of "dollar checking accounts" and of "foreign checking accounts" Net changes in year-end balances of international banking accounts (net export or import of short-term capital) often run into the hundreds of millions and are, therefore, one of the largest invisible items) (2) Through substitutions and backwashes on the purchasing-power plane Sums invested in foreign securities might have been invested in plant and equipment in this country, thereby involving at least some additional imports of merchandise, and those sums might have been spent partly on imported luxuries or on foreign tours, these examples illustrate the substitution of purchasing power The foreign borrowers, being endowed with more purchasing power, buy additional American goods, services, and securities, this illustrates the backwash of purchasing power (3) Through the immediately altered foreign-exchange rates Any American export whatsoever tends to raise dollar exchange and to lower foreign exchange, thus tending to detract from all other American exports and to promote all imports (4) Through changed interests rates and price levels These influences can not be traced briefly

It is useful to designate the influences on the first two plans as direct and those on the last two plans as indirect The foregoing war-debts examples illustrate only direct influences

Exceptions to the Law.

There are some interesting partial exceptions to the law (1) To the extent that gold shipments affect price levels, they run counter to the rule, gold exports, for example, tend to lower prices here and to raise prices abroad, thus tending to reduce all imports (visible and invisible) and to increase all exports[32] Gold viewed as a commodity, however, is not an exception (2) Loans to foreigners, an invisible import, tend to raise interest rates at home and to lower them abroad This tends to promote (not to detract from) "yield of foreigners' investments and deposits in the United States," which is also an import Loans to foreigners also detract from (not promote) "yield of previous American investments and deposits abroad," an invisible export If a billion of foreign loans raises interest rates at home by one point, it would now promote "yield of foreign deposits in the United States" by something like $25,000,000 a year As this volume of security imports would promote "yield of new American investments abroad" by about $60,000,000 a year, the law would be valid despite the exception, besides, the law operates powerfully in the case of foreign loans on both the purchasing-power and foreign-exchange planes (3) We import foreign securities If foreigners use the proceeds to build factories which produce goods previously imported from us, our visible import detracts from (fails to promote, in this one respect) an export (4) An increase in American merchandise exports might increase the yield of the American merchant marine, an invisible export

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[30] See The Annalist, May 25, 1928, and Barron's Weekly, Sept 9, 1929

[31] The United States Treasury is required by law to devote the war debt receipts to retiring Treasury obligations Beyond reasonable doubt, part of the principal sums thus received by American holders of such obligations has actually been reinvested in foreign securities

Does Trade Follow the Loan? (Detractions and Promotions)

It is sometimes asserted as an axiom that trade follows the loan—that our new investments abroad, being dollar credits, can not be usesd by foreigners unless they buy American merchandise Those who hold this statement to be an axiom virtually state as follows "Our purchases of foreign securities are an invisible import which exerts no 'detractive' influence whatsoever upon any of the other imports (visible or invisible) and which 'promote' our merchandise exports without 'promoting' any of our other visible or invisible exports" Thus stated, the "axiom" is seen to be faulty

Even the trade balance often fails to follow the loan During the period when foreign countries were investing most heavily in the United States, say from 1876 to 1910, the United States had strongly favorable balances in trade Again our favorable balances of trade in 1923 and 1926 were, respectively, $375,000,000 and $378,000,000, whereas foreign securities publicly offered in the United States were $791,000,000 greater in 1926 than in 1923

Passive Versus Causal Character of Items.

Certain writers on foreign trade regard our new loans abroad as a funding of debts created by our excess of merchandise exports—as certainly was the case during the World War That is, they regard our merchandise sales to foreigners as purely causal and our new loans abroad as purely passive, they disregard the fact that, in normal times, foreign loans depend upon comparative interest rates here and abroad and that these interest rates may be little affected by exports and imports Other writers regarding the foreign loans as purely causal declare that they can not be granted, nor served, nor redeemed except in merchandise, so, to these persons, the merchandise movement seems wholly passive These writers would deny than our merchandise exporting activities can be as basic, primal, and causal as our security-importing activities

Both classes of writers disregard the very numerous minor balance-of-payment items (in the aggregate vastly more important than the merchandise balance), nearly every one of which is likewise partly passive and partly causal Almost every item affects, and is affected by, every other item Even gold shipments may be causal, since they may be made on a "commodity basis" as well as a "straight exchange basis"[33]

Certain individual transactions with foreigners constitute a virtually irreducible minimum of the balance-of-payments item to which they relate These transactions are purely causal,[34] since they can not be eliminated and their very existence causes "promotive" or "detractive" adjustments in other balance-of-payments items Thus, a few persons would travel abroad whatever the discouragements, certain luxury articles will be imported whatever the price, etc Other individual transactions with foreigners are more passive, economists might call them "marginal" Thus, a luxury article is imported by one American because his oil investments in Mexico prospered

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[32] The "classical" economists believed that gold shipments, with their influence on commodity price levels, were practically the sole factor in creating long-term equilibrium This influence being calmly regarded as a minor exception to the 'law of detractions and promotions," the law is seen to be a radical departure

[33] Gold moves on a "commodity basis" when it is bought, regardless of exchange rates, for gold reserves in currency reconstruction, when it is sent abroad by a central bank for deposit, in order to make it a productive asset, when it is shipped long after it is earmarked, or when gold ore is imported, or exported, for smelting

[34] The war debt payments may be regarded as purely causal Freight payments are passively related to the commodity movement

"Pairing-Off" Fallacies

It is often said that our favorable trade balance is financed by our net export of capital or that German reparations are financed by American loans Such "pairings-off" are sometimes useful for comparing the magnitude of items on opposite sides of a balance of payments, but rarely, if ever, do they show a cause-and-effect relationship In certain years our trade balance does tally closely with our net export of capital, in others, it tallies far more closely with tourist expenditures In 1928 the net yield of our foreign investments almost exactly "paid for" our net tourist expenditures In 1926, net immigrant remittances almost exactly equaled war-debt receipts Coincidences of this kind are numerous, even among the larger items

Classification of Items.

Some writers speak of "current" as distinguished from "capital" items in a balance of payments The capital items consist of (1) all items in the section of the statement labeled "Movement of private long-term capital," (2) the principal sums received as war-debt payments, and (3) the net changes in international banking accounts All other items are current

That the items might be classified as mercantile, financial, and personal is suggested by Dr Roland P Faulkner, chief statistician of the National Industrial Conference Board[35]

The classification herein used is commodity trade, miscellaneous invisible items, movement of private long-term capital, and other balancing items

History of Balances of Payments.

The term "balance of payments" was probably first used in 1819, in the report of a parliamentary committee which had studied a proposal to bring British currency back to the gold standard after the Napoleonic wars The first formal balance of payments of the United States, by Sir George Paish, covering the year ended June 30, 1910, is available in the report of the National Monetary Commission, but several partial investigations of American international payments were made between 1893 and 1910 In 1919 the Harvard School of Business Administration published still more complete balances of payments for varying periods of years from 1789 to 1918, in an investigation of American balances of trade, and it later published annual balances of payments for 1919, 1920, and 1921 Our first official balance of payments, covering the calendar year 1922, was published under the direction of the Secretary of Commerce (Herbert Hoover), and one has appeared annually since[36] The League of Nations now publishes the annual balances of payments of about 25 countries The foregoing facts are excerpted from The International Accounts, by Cleona Lewis, published in 1927 by the MacMillan Co

New Field for Investigation.

Interarea payments constitute almost a pioneer field Balances of payments between the United States and the United Kingdom for 1927 and 1928 will be found in Commerce Reports for August 19, 1929 Similar surveys of payments between the United States and each important foreign country, either for a single year or for a series of years, would be valuable contributions The economic relations between parent countries and their possessions or colonies might well be analyzed in the same way Much progress might be made if universities would accept such surveys as seminar reports or as postgraduate theses

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[35] See The Conference Board Bulletin for Oct 15, 1929

[36] Balances of payments for 1919, 1920, and the first nine months of 1921 were published in the Federal Reserve Bulletin for November, 1921 Beginning with 1922 these studies have been issued annually by the Bureau of Foreign and Domestic Commerce in its Trade Information Bulletin series, as follows 1922, No 144, 1923, No 215, 1924, No 340, 1925, No 399, 1926, No 503, 1927, No 552, 1928, No 625 While the earlier numbers are out of print, copies may be consulted at State libraries, many public and university libraries, or at the district and cooperative offices of the bureau

SUMMARY OF NEW REFINEMENTS IN 1929

1 There was an unusually large premium on dollar exchange for the year as a whole An estimate of the resulting economy on our merchandise imports was included for the first time

2 A large error in the previous estimate of the lag in merchandise payments in 1922 was pointed out

3 The "freight bill of the Nation," as computed by Virgil Miller of the United States Shipping Board, covers the calendar year for the first time Previously fiscal-year figures had to be adjusted to the calendar year

4 Inductive data on the average expenditures of American motorists in Canada on 24-hour permits were obtained for the first time, by questionnaire Important corrections resulted

5 Arrangements were concluded to obtain from the Bureau of Immigration actual statistics for 1930 of American oversea tourists, by cabin classes, by ocean lanes, and by flags of the carrier

6 The results of the biennial questionnaire to commercial attachés and consuls on immigrant remittances and tourist expenditures cover a longer list of countries

7 A computation was made, for the first time, of the economies made by foreign governments in making war-debt payments to the United States Treasury in the form of United States bonds

8 The survey of short-term capital movements includes the figures of a great many more international banking institutions than ever before, and important corrections were made in the previous year's reports by certain of these institutions, notably as regards brokers' loans

9 The "law of detractions and promotions" is formulated more clearly

10 A balance of payments between America and France was published separately

11 A final revision of the amounts of foreign securities publicly offered in the United States since 1913 is included herein

12 Brokerage commissions and transfer taxes paid by foreigners on American stock exchanges are estimated for the first time

13 The earnings of American stockbrokers from foreign customers is an important invisible "discovered" this year

14 The questionnaire on securities internationally transferred through stock exchanges requested for the first time information as to the extent of marginal trading Such trading, share for share, involves much smaller sums of dollar-exchange transactions

15 The questionnaire on bond-redemption and sinking-fund payments requested trustees and paying agents to estimate the sums paid to foreign holders

QUESTIONNAIRE TO BALANCE-OF-PAYMENTS READERS

Explanation.—If you have returned from overseas since September, 1929, please fill out the blanks below and mail this sheet to the Finance and Investment Division, United States Department of Commerce, Washington, D. C.

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1. On your recent trip overseas, by which steamship class did you depart?

Third class_______________
Tourist class_______________
Student class_______________
Second class_______________
Monoclass_______________
Cabin class_______________
One-cabin boat_______________
First class_______________
"Luxury" class_______________
Cruise_______________
Other_______________

2. In this answer, please report your total expenditures on the trip, for all purposes whatsoever (except for passport fee and for railway fare, hotels, etc., in the United States). Be sure to include in this grand total visa fees paid here or abroad, steamship passages, tips, and purchases made abroad, etc.

(*a*) If you traveled entirely alone, what was your own total expenditure?
$______________________________

(*b*) If you traveled in a close family unit of two or more persons, and if it is easier for you to compute the *average expenditure* per person in the group, please report that. Count infants as persons in your group. Do not count your secretaries or servants as members of your family group, and do not include in your expenditure what you paid either for their services or for their expenses. Average per person $______________________________

3. How many persons are included in this average? ______________________

4. When you reentered the United States did you pay any duty? __________

5. If you did pay duty, what was the total declaration,[1] including the $100 exemption? ____

6. If the above was a joint declaration, how many persons did it cover?
____

7. I visited the following countries ______________________________

____

Signed ______________________________
(Signature optional)

Address ______________________________

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[1] Amounts so declared are included in the published statistics of American "visible" imports of merchandise, and the whole purpose of this questionnaire is to ascertain the average "invisible" imports by Americans traveling overseas.

U. S. DEPARTMENT OF COMMERCE
R P. LAMONT, Secretary
BUREAU OF FOREIGN AND DOMESTIC COMMERCE
WILLIAM L COOPER, Director

AUSTRALIAN RAISIN AND CURRANT INDUSTRY AND TRADE

Trade Information Bulletin No 699

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FOREWORD

Climatic conditions in Australia were early recognized as being suitable for the production of dried fruits, and as early as 1901 something over 2,000 tons of vine fruits were produced there. Production increased slowly until the postwar high prices and the settlement of returned soldiers on irrigated areas with governmental aid gave a great impetus to the industry. Prior to 1912 imports of currants and raisins into Australia exceeded the exports, and in 1913 the exports of 1,190 short tons were only 10 per cent of the production. From the 1926–27 crop exports amounted to over 45,000 tons. Those of 1929–30, following the severe frost of the preceding season, were slightly smaller, but the upward trend still persists.

Most of the Australian exports go to the United Kingdom, where they receive a preference of about $35 per ton. This preference, with other factors, has increased the Australian share in the raisin import trade of the United Kingdom from 32.2 per cent in 1924 to 44.5 per cent in 1929. During 1929 27 per cent of the raisins exported from the United States went to the United Kingdom, where they were in direct competition with those from Australia.

Most of the Australian fruits, both vine and tree, are produced on irrigated lands along the Murray River. The author of this report recently went through this district and made a comprehensive study of the economic factors affecting the production of vine fruits, although many of the facts presented are equally applicable to the production of tree fruits, in which there is an increasing interest in Australia. This publication should prove of value to persons interested in the progress of Australia as a competitor of the United States in the world markets for dried fruits.

William L. Cooper, *Director,*
Bureau of Foreign and Domestic Commerce.

May, 1930.

AUSTRALIAN RAISIN AND CURRANT INDUSTRY

By E C Squire, American Trade Commissioner, Sydney, Australia

Australia has made rapid strides during recent years as an exporter of raisins and currants A gradual increase in production was taking place before the World War, but high prices of these products during and for a few years after the war are the major causes of the great increase The natural increase in production caused by the high prices has been greatly encouraged by the State governments of Australia which, influenced by high prices, made very large additions to areas under cultivation, by patriotic developmental schemes of settling returned soldiers on the land Since the prices declined drastically in 1923 and have shown no tendency to regain early post-war levels, the State governments and the industry have been taking stock of the situation, particularly during the past year or two

RELATIONSHIP TO IRRIGATION DEVELOPMENT

Practically all raisin and currant production of commercial importance in Australia, and production of the larger part of fruits for canning, is on irrigated lands, hence, the relationship of such production to irrigation will be of interest

EARLY IRRIGATION PROJECTS

The first irrigation of importance was launched by two Americans (the Chaffee brothers), who made investigations along the Murray River about 1885 and settled upon the present site of Mildura as suitable They were able to make arrangements with the State of Victoria, and their project covered several thousand acres A good start was made, but some difficulties arose, and during the financial crisis about 1894 the Victorian government took over the areas However, the great respect in which these founders is still held is shown by the fact that recently a monument was erected in Mildura to one of the brothers (W B Chaffee) Soon other irrigation projects grew, particularly in Victoria, and one other well-known American (Mr Elwood Mead, who acted for a number of years as commissioner of state rivers and water supply), played an important part in shaping their development At present nearly one-third of Victoria is under some sort of irrigation, but by far the greater part of this irrigation is to provide water for stock and for similar purposes

PRESENT IRRIGATION AREAS

A complete report on irrigation in Australia is outside the scope of this report, and a lengthy description of all projects, with details of capital expenditure, profits, and losses, would merely confuse one interested only in fruit

In the irrigation areas now producing fruit, water is sufficiently plentiful and well controlled, so that the possibility of a water shortage affecting production even in a dry year is very remote For instance, in the Murrumbidgee area of New South Wales, present developments can employ only about 40 per cent of water available for irrigation

In the second place the percentage of fruit areas to total irrigated areas is comparatively small and fruit areas could be greatly enlarged at the expense of other industries if fruit production were to become comparatively profitable, as a matter of fact, difficulty has arisen in finding suitable crops of any sort that will profitably employ all the land where water for irrigation has been made available

The cost of water for irrigation, along with other costs of production, is of importance, and general information regarding such rates will be mentioned later In some cases rates would have to be materially increased if irrigation projects were to meet fully all capital and other charges, but even under present financial conditions this is not likely to be rigidly put into effect on existing works, since such projects are regarded as a general and long-term investment

In Victoria approximately 15,800,000 acres are artificially supplied with water, but only 471,695 acres were under irrigated culture in 1929 Of this latter figure only 71,043 acres were under "vineyards, orchards, and gardens," or about 15 per cent of the land under irrigated culture and of such land in fruit and gardens only 41,565 were planted to vines in 1928–29, and most of these plantings were on two areas directly contiguous to the Murray River

Production in South Australia from Renmark to Waikerie comprises practically all the production of raisins and currants, and conditions are similar to Victoria Production is dependent on water from the Murray River Only about 784 short tons of raisins and currants are produced in South Australia on nonirrigated land and about 1,456 short tons in Western Australia This total of approximately 2,240 tons is almost negligible compared with production under irrigation

The irrigation districts at Curlwaa and Coomealla, although in New South Wales are also contiguous to the Murray, just across the river from the Mildura area, and are irrigated like practically all the others—by pumping At Coomealla particularly there are great opportunities of expanding production of dried fruits, there are about 35,000 acres, of which only about 3,000 have been developed owing to a slump in fruit prices In 1925–26 there were 452 acres planted to grapes for drying and 61 acres not yet bearing In 1927–28 there were 497 acres bearing and 690 acres not yet bearing It is said there have been some further small plantings, but areas are still comparatively small

One other very important irrigation project—the Murrumbidgee area—should be mentioned However, the trend of dried vine fruit production there does not warrant any detailed description of the irrigation project Water flow is controlled on the Murrumbidgee by a large dam, the Burrinjuck Some 250 miles below, water is diverted to the Murrumbidgee irrigation area About 140,000 acres are now developed Not more than 40 per cent of available water is used, and the dam provides storage for several years' water supply Water rates are very low, namely, $1 22 per acre-foot to fruit growers However, climatic and soil conditions do not seem particularly well suited to raisin growing, and although areas so planted are small there is a decided tendency toward reduction This is the center in New South Wales, however, for wine production

MURRUMBIDGEE ACREAGES PLANTED TO DRYING GRAPES AND CURRANTS

Group	1925-26	1927-28
Bearing vines	1,009	1,547
Young, not bearing	1,349	447
Total	2,358	1,994

From the foregoing brief sketch it will be seen that by far the bulk of raisin and currant production is directly along the Murray River The large part is irrigated by water drawn directly from the Murray itself, though some areas are watered by the smaller tributaries For practical purposes it may be said that raisin and currant production depends on water from the Murray River Most of the water is lifted by centrifugal pumps, in many cases to a height of considerably over 100 feet

WATER RATES IN IRRIGATED AREAS

The charge for water at all irrigation settlements is not the same The rates are as follows

Renmark (South Australia)	$13 37 per acre, plus $2 43 for additional watering
South Australia Irrigation Commission	$14 58 per acre, plus $3 65 for additional watering
Merbein (Victoria)	$5 83 per acre foot (minimum 2½ acre-feet—$14 58), plus domestic and stock rate
Redcliffs (Victoria)	$17 per acre for vines over 3 years old
Mildura Trust	$15 80 per acre for 3 waterings, $3 65 per acre for additional watering
Nyah (Victoria)	$12 15 per acre, plus domestic and stock rate
Woorinen (Victoria)	$3 65 per acre (gravitation), plus domestic and stock rate

It is not possible to fix an amount applicable to all settlements, but, with the exception of Woorinen and Mildura, the majority of growers pay $17 per acre Shire rates throughout average $2 43 per acre

PROPOSED DEVELOPMENT

All irrigation projects on the Murray could be considered one huge irrigation scheme In fact, this has been recognized in Australia, and an agreement has been entered into by the Commonwealth Government and the three interested States—Victoria, South Australia, and New South Wales—called "The River Murray water agreement" A very ambitious scheme of development was agreed upon, with a construction program extending to 1932 and possibly longer

The original plan called for a series of 15 weirs to be erected in the Murray River to regulate flow and provide storage, and a huge dam, the Hume Reservoir, with 2,000,000 acre-feet capacity, to be erected at the upper part of the river The increase in irrigated areas will be apparent from the fact that this scheme, when completed, would give sufficient water for the doubling of the whole areas now devoted to production under irrigation in Australia These new areas are of course contiguous to the Murray River itself Up to June 30, 1927, total expenditure on irrigation and reclamation works on the Murray and its tributaries totaled over $160,380,000 Up to the present the total is, of course, considerably larger Financial considerations and the outlook for marketing produce grown has caused some paring down of this project—partly as a result of a suggestion made by the British economic mission. As mentioned elsewhere, there has been considerable difficulty in finding profitable use for all new land coming under irrigation. Consequently, it is now planned to complete the Hume Reservoir to store only 100,000 acre-feet for the present, as a matter of fact storage of 80,000 acre-feet has been completed. Despite this slowing down, marked progress has been made. From the mouth of the river upward eight locks and weirs have been completed, including No. 11 at Mildura. Some of the other locks are well under way.

To the dried-fruit industry this means that there is little likelihood of any water shortage in the future, though the industry has passed through several critical years in the past—the last one in 1915, when the Murray was nearly dry and the water became so salty that it ruined many orchards.

GOVERNMENT AID FOR DEVELOPMENT PROJECTS

During the earlier years of dried-fruit production developmental stimulus came largely from the industry itself and from its promoters. However, it very soon began to receive developmental assistance from the various State governments, and that is the key to the rapid growth. A recent change in the governmental attitude may presage a halt to such expansions.

The Australian States and the Federal Government have for many years made great efforts to cause a rapid development of the country. Projects that would bring about closer settlements were favorably regarded, since the staple industries of sheep and cattle raising appeared to deter the formation of small holdings. When the possibilities of increasing the population greatly throughout the Murray Basin by irrigation was appreciated, the States not only bought up large areas for irrigation and developed the projects by the use of loan money, but also assisted financially those who wished to settle on such areas. This assistance in many cases amounted to the larger part of the financial requirements of such settlers and the granting of favorable terms of repayment. The fruit industry appeared promising and a rapid expansion was consequently stimulated. Production of dried fruits reached 10,080 short tons by 1910, and by 1913 exports began. However, it was the soldier settlements that accounted for the huge increase beginning in 1919. As the soldiers returned from the war a national policy was formed of settling many of them on the land by the aid of loan money. World prices for raisins and currants were soaring during and just after the war, and, among other projects, a large number of soldiers were established in the dried-fruit industry. The coming into bearing of such soldier settlements as at Red Cliffs, Victoria, accounts for much of the increase from a production of 16,800 tons in 1919 to 78,400 tons in 1929. Such settlements were developed by the States during the years of highest costs as well as highest fruit prices, and it has now become necessary to revalue soldier holdings, with consequent losses to the States. While most of such soldiers have either left or adjusted themselves to what to most of them was a completely new industry, yet further revaluations and cutting of losses will undoubtedly have to be made.

A number of important factors have developed which are influencing the State and Federal Governments with regard to closer settlement in general, and the canned and dried fruit industries in particular To measure the effects that these may have on further production, the factors are briefly sketched below

Continued announcements of expenditures and losses on irrigation works and settlements have caused the press and the public to adopt a very critical attitude, and the British economic mission about 18 months ago suggested that expenditures on such projects might be viewed more discriminatingly Thus, with world prices declining rapidly on many crops suitable for production in irrigation areas, it became difficult to find profitable use for such land

The dried and canned fruit industries particularly suffered The market and migration commission (an economic branch of the Federal Government) made an economic survey of those industries and with regard to dried fruits recommended, among other things, "that Governments definitely discourage further plantings until additional markets are assured "

In addition to these factors, Australia has been and is experiencing a period of financial stringency which is particularly affecting State and Federal governmental finance, and loan moneys for any sort of developmental purpose are being drastically reduced

The foregoing factors are bound to have effects, and so far as fruit developments are concerned, the irrigation commissioner in Victoria recently stated that he was refusing to give any financial assistance whatsoever to settlers who wished to take up new areas for fruit production, and further added that such settlers were very unlikely to make a venture without such assistance It is understood that the official attitude in New South Wales is about the same Reference has already been made to drastic curtailment of proposed plantings of raisin grapes at Coomealla, New South Wales

The trade itself is taking a similar attitude by discouraging the extension of existing plantings

PRODUCTION OF RAISINS AND CURRANTS

The expanding production of raisins and currants in Australia is shown in the following figures

Raisins and currants	Short tons
1901–2	2, 286
1902–3	3, 119
1903–4	4, 726
1904–5	3, 230
1905–6	4, 247
1906–7	7, 859
1907–8	6, 966
1908–9	7, 579
1909–10	9, 732
1910–11	10, 268
1911–12	13, 153
1912–13	14, 082
1913–14	15, 330

[The years 1901 to 1907 are exclusive of New South Wales, of which no records are available Queensland and Western Australian statistics are also unavailable, but these would be almost negligible]

AUSTRALIAN PRODUCTION OF RAISINS AND CURRANTS, 1914–15 to 1929–30

[In short tons]

Year	Raisins	Currants	Year	Raisins	Currants
1914–15	8, 393	3, 119	1919–20	15, 725	8, 042
1915–16	13, 723	7, 874	1920–21	9, 417	7, 646
1916–17	10, 313	6, 759	1921–22	15, 121	9, 079
1917–18	8, 473	6, 135	1922–23	20, 876	11, 754
1918–19	9, 542	7, 429	1923–24	33, 062	17, 040

Year	Raisins		Currants	Year	Raisins		Currants
	Sultanas	Lexias			Sultanas	Lexias	
1924–25	22, 868	5, 719	13, 097	1927–28	21, 795	5, 843	8, 035
1925–26	21, 712	3, 371	14, 151	1928–29	51, 520	7, 494	21, 160
1926–27	43, 074	5, 941	12, 810	1929–30	[1] 43, 680	[1] 5, 600	[1] 20, 160

[1] Estimated

AUSTRALIAN RAISIN AND CURRANT PRODUCTION, BY STATES, 1924–25 TO 1928–29

[In short tons]

State	1924–25	1925–26	1926–27	1927–28	1928–29
SULTANAS					
Victoria	16, 992	16, 416	33, 285	18, 300	37, 310
South Australia	5, 507	4, 944	8, 676	2, 143	11, 159
New South Wales	293	225	981	1, 169	2, 849
Western Australia	76	127	132	183	202
Total	22, 868	21, 712	43, 074	21, 795	51, 520
CURRANTS					
Victoria	6, 336	7, 004	7, 763	3, 932	10, 298
South Australia	5, 769	5, 865	3, 618	2, 433	8, 818
New South Wales	137	171	132	205	575
Western Australia	855	1, 111	1, 297	1, 465	1, 469
Total	13, 097	14, 151	12, 810	8, 035	21, 160
LEXIAS					
Victoria	3, 277	2, 036	4, 400	3, 951	5, 496
South Australia	2, 125	1, 076	1, 180	964	1, 318
New South Wales	63	41	25	250	276
Western Australia	254	218	336	678	404
Total	5, 719	3, 371	5, 941	5, 843	7, 494
ALL VARIETIES					
Victoria	26, 605	25, 456	45, 448	26, 183	53, 104
South Australia	13, 401	11, 885	13, 474	5, 540	21, 295
New South Wales	493	437	1, 138	1, 624	3, 700
Western Australia	1, 185	1, 456	1, 765	2, 326	2, 075
Total	41, 684	39, 234	61, 825	35, 673	80, 174

It will appear from the foregoing table that Victoria is by far the most important factor in the production of raisins and currants, particularly sultanas. South Australia is second, and in the production of currants is nearly as important as Victoria. In South Australia there is a closer relation between the wine and the dried vine fruits than in other States, and this accounts in large measure for the great variations of production, depending on the relative prices that are obtainable. It is commonly said that in South Australia raisins and currants are produced on relatively poor soils, also that producers commonly have other crops besides raisins, consequently, continued low prices for raisins and currants are likely to prove a greater deterrent to production than in many other areas

Production in Western Australia is relatively unimportant

New South Wales, though of relatively small importance in the industry, would probably become a heavy producer if prices for raisins and currants were more favorable The State government has opened up large irrigation areas that are suitable for dried fruits, but only relatively small plantings have been made

In view of the importance of Victoria in the dried-fruit industry, a more detailed analysis of production in that State appears warranted Details of production in Victoria are as follows.

AREA UNDER AND PRODUCE OF VINES IN VICTORIA, BY COUNTIES, 1928–29, AND TOTALS FOR FIVE PRECEDING SEASONS

Principal shires	Growers	Area planted		Total grapes gathered	Wine made	Dried produce		
						Raisins		Currants
		Bearing	Not bearing			Lexias	Sultanas	
		Acres	*Acres*	*Short tons*	*Gallons*	*Short tons*	*Short tons*	*Short tons*
Ararat	17	373	6	457	39, 900	----------	----------	----------
Stawell	25	607	1	580	88, 957	----------	----------	----------
Wimmera	48	134	6	209	----------	----------	4	21
Mildura	1, 671	25, 097	1, 719	192, 597	681, 900	4, 977	32, 281	9, 865
Swan Hill	442	4, 888	619	26, 799	300	310	5, 442	718
Deakin	54	288	5	497	500	1	64	3
Rodney	74	446	22	963	9, 000	----------	21	10
Shepparton	84	281	22	570	7, 500	----------	15	----------
Tungamah	12	69	5	25	200	----------	----------	----------
Benalla	16	324	109	398	38, 220	----------	----------	----------
Wangaratta	7	64	5	113	11, 500	----------	----------	----------
Rutherglen	102	4, 608	178	5, 178	603, 215	----------	----------	----------
Chiltern	28	453	18	391	34, 880	----------	----------	----------
Remainder of State	166	1, 057	161	1, 804	58, 468	2	59	17
Total								
1928–29	2, 746	38, 689	2, 876	[1] 230, 581	[2] 1, 942, 701	5, 290	37, 886	10, 634
1927–28	2, 774	37, 974	3, 014	127, 443	2, 353, 890	4, 237	18, 292	4, 094
1926–27	2, 832	37, 340	3, 272	199, 764	2, 346, 314	4, 216	32, 614	7, 586
1925–26	2, 876	36, 091	4, 621	126, 217	1, 657, 274	3, 025	16, 659	6, 928
1924–25	2, 999	31, 723	10, 744	119, 971	1, 268, 765	3, 958	16, 593	5, 877

[1] Of this total the estimated quantity used for making wine, etc , was 15,449 short tons, for making raisins and currants 210,756 tons, and for table consumption, 4,376 short tons

[2] Includes also 368,161 gallons manufactured in Melbourne for distillation

It will appear from the preceding table that over 90 per cent of Victorian grape production is turned into dried products.

It will also be seen that the Mildura area produces 88 per cent of all dried grapes produced in Victoria, and about 85 per cent of all sultanas produced, which are of course included in the total It will also be apparent that the Mildura area (or shire) produces somewhat over 60 per cent of the total Australian sultana crop, and around 60 per cent of all dried-grape products

In view of the great importance of Mildura (Shire), an analysis of production and acreage for the past five years is given

The average planting of lexias was about 33 per cent as large as sultana plantings in 1925, but had declined to about 20 per cent in 1929 Plantings of currants are slightly higher than of lexias

ACREAGE AND PRODUCTION OF SULTANAS IN MILDURA AREA, 1925–1929

Item	1925	1926	1927	1928	1929
Mildura Irrigation Trust (40-year old settlement)					
Production, dried.................. short tons..	6,731	4,693	9,150	3,928	9,834
Area producing.......................acres..	5,994	6,056	6,150	6,045	6,048
Per acre yield.......................short tons..	1.1	0.77	1.5	0.65	1.6
Merbein (20-year old settlement)					
Production.......................short tons..	6,115	4,336	8,736	4,426	8,669
Area producing.......................acres..	3,803	3,850	3,900	3,895	3,895
Per acre yield.......................short tons..	1.6	1.1	2.2	1.1	2.2
Red Cliffs (9 year-old areas)					
Production.......................short tons..	1,288	4,726	11,458	6,810	12,757
Area producing.......................acres..	1,000	3,500	7,000	6,912	6,912
Per acre yield.......................short tons..	1.28	1.3	1.6	0.98	1.8
Total					
Production.......................short tons..	14,134	13,755	29,344	15,164	31,260
Producing area.......................acres..	10,797	13,406	17,050	16,852	16,855
Per acre yield.......................short tons[1]..	1.3	1.0	1.7	0.90	1.85

[1] Average yield (5 years) for whole area, 1.376 short tons per acre.

It will be seen from the foregoing table that the only important increase in acreage in the Mildura area has been the coming into bearing of Red Cliff plantings. Red Cliff is a settlement of ex-soldiers settled on the land by the Government. Comparative high yields of that area will be noted. It will be seen also that the large crops of 1929 and 1930 have not been due to increased acreages, as there is a slight tendency toward reduction.

COSTS OF PRODUCTION

Mention has been made of the fact that expansion of production is being discouraged. The reason, of course, is mainly the relationship between costs and market prices.

The development and migration commission made a detailed survey of the economic aspects of the dried-fruit industry in 1927, and it then recommended discouragement of expansion, though prices were considerably higher than at present. The commission made careful and detailed cost studies, and some of their findings are being quoted below because costs have not declined noticeably since these investigations were made. It is well to mention that a number of people closely associated with the industry have remarked that the costs that this commission arrived at were bound to be on the high side, owing to the fact that those supplying evidence were inclined to feel that the Government might decide to give some financial aid to the industry, or that such evidence might lead to a further writing off of capital values of the individual settlers. Despite such comment, the inquiry was conducted by very competent investigators, and at least it can be said that costs of an important part of the producers are comparable with their findings.

Raisins and currants in Australia are produced largely by small landholders. The new producing area at Red Cliffs, for instance, was originally 15-acre lots. There is a tendency to increase this when possible, but any holding over 25 acres is considered exceptionally large.

The cost of bringing an acre of land to bearing varies according to the cost of the land. The following figures based on a 15-acre block show the cost to be $686 per acre, based on present-day costs.

Land (15 acres at $97 per acre)			$1,455
House and outbuildings		$1,360	
Cleaning up and grading		340	
Fencing		97	
Rooted vines		243	
Trellis posts and wire			
Posts	$486		
Wire	369		
		855	
4 racks at (per rack)			
Material	122		
Roof	65		
4 at	187	748	
Harvesting requirements			
300 dip tins at $0.60		180	
16 bolts Hessian, at $10.94		175	
80 sweat boxes at $1.82		146	
Dip tank		34	
			4,178
General plant			
2 horses		291	
Harness		49	
Cultivator		87	
2 plows		58	
Grape and berry hoe		24	
Trolley		194	
Sundry tools, including dust gun		87	
			790
Cultivation, etc., 3 years			
Labor (sustenance)		1,750	
Manure and horse feed		680	
			2,430
Accumulating charges			
Water ($25 per acre for 3 years on 14 acres)		350	
Shire		97	
Interest (estimate of State Rivers and Water Supply Commission, Victoria)		991	
			1,438
Total			10,291
Average per acre			686

In some districts blocks were established when labor and material were not so expensive, and in others when the costs were higher. The price of land has also varied in the different settlements.

The general plant shown is the absolute minimum. Two horses have been provided for, although they would not be absolutely necessary for the whole of the three years. The fodder allowance for the first three years has therefore been reduced to an average of $194 per year. No provision has been made for a spray pump, which would cost from $194 to $340, and which must eventually be purchased by a certain number of growers. Some growers purchase additional plant when they are in a position to do so.

In calculating the cost of production, an allowance of 6 per cent on the capital value of an improved block has been made as a charge against income. Growers and packers have been asked to state the figure on which this percentage should be based, and the value has almost invariably been placed at $486 to $583 per acre as representing the present-day capital value of a block. In working on $583 per acre, the following points have been kept in mind:

(*a*) Fairly extensive areas were brought to production when costs were lower.
(*b*) The writing down of liabilities of soldier settlers in South Australia.

(c) The applications for the writing down of liabilities now being dealt with in Victoria.

(d) The general impression among those well qualified to judge that the present capital value is from $486 to $583 per acre.

It is important to point out also that, with slight additions in the way of racks, trellis, and harvesting plant, the improvements and plant for a 25-acre block would be the same as for 15 acres, thus reducing the average per acre.

In South Australia, the irrigation commission has recently investigated the claims of soldier settlers in irrigation areas to have their capital liabilities reduced on account of the return from the blocks being out of proportion to the capital invested. Substantial reductions have already been made by writing down settlers' debits to figures which represented a reasonable charge for the work done or services rendered on the blocks.

Up to the present the irrigation commission has investigated 426 holdings and has recommended that $2,008,983 be written off. In the case of holdings where the area is small and the return per acre low, a minimum debit has been fixed for improvements at $145.80 per acre, plus cost of house, and in the case of small areas of better land, the minimum debit has been made $243 per acre, plus cost of house. Efforts are also being made, where land is available, to increase the area of individual holdings so as to effect more efficient and more profitable working.

The evidence taken by the development and migration commission shows that numerous estimates of the cost of producing a ton of fruit have been made. The figures for each block vary according to (a) the size of the block, (b) the quality of the soil and variation in yield, (c) the area planted with each class of vine, and (d) the ability of the settler to perform the greater part of the work himself.

ESTIMATED COST OF PRODUCTION ON A 15-ACRE BLOCK

[Assume 14 acres[1] planted; 1 acre for house, buildings, etc.]

Item	Yield of 20 hundredweight (1.12 short tons per acre)	Yield of 25 hundredweight (1.4 short tons per acre)	Yield of 30 hundredweight (1.68 short tons per acre)	Yield of 40 hundredweight (2.24 short tons per acre)
Fixed expenses:				
Fodder	$292.00	$292.00	$292.00	$292.00
Insurance (fire and workers compensation)	14.60	14.60	14.60	14.60
Manure, green ($2.43 per acre)	34.07	34.07	34.07	34.07
Spraying ($1.95 per acre)	27.30	27.30	27.30	27.30
Sundry expenses (repairs, replacements, etc.)	48.67	48.67	48.67	48.67
Water rates Share rates (allow $19.47 per acre)	272.58	272.58	272.58	272.58
Depreciation (see notes)	155.73	155.73	155.73	155.73
Settlers labor (all work except for additional labor at harvest, $21.90, less $2.43 for house, per week)	1,012.44	1,012.44	1,012.44	1,012.44
Fluctuating expenses according to tonnage:				
Additional manure (superphosphate)	82.73	82.73	170.33	194.66
Extra labor for harvesting ($21.72 per ton)	340.57	425.71	510.85	681.14
Sundry harvesting expenses (dip material, firewood, etc., $2.61 per ton)	40.92	51.16	61.39	81.85
	2,321.61	2,416.99	2,599.96	2,815.04
Interest on capital value of land improvements	525.58	525.58	525.58	525.58
Interest on production costs	126.53	136.26	146.00	160.59
Total cost	2,973.72	3,078.83	3,271.54	3,501.21
Total yield (short tons)	15.68	19.6	23.52	31.36
Cost per short ton	$189.65	$157.80	$139.10	$111.65

[1] If the plantings cover more than 14 acres, the cost of production per ton will be proportionately reduced.

NOTE.—The figures in the table are subject to reduction if the commission's recommendations are followed.

RETURNS FROM 15-ACRE BLOCK ON SWEAT-BOX PRICES RANGING FROM $155 TO $195 PER SHORT TON

Item	Yield of 20 hundredweight (1.12 short tons)			Yield of 25 hundredweight (1.4 short tons)		
	Cost	Return	Profit or loss	Cost	Return	Profit or loss
Price per ton						
$155	$2,973.72	$2,430.40	−$543.32	$3,078.83	$3,038.00	−$40.83
$165	2,973.72	2,587.20	−386.52	3,078.83	3,234.00	+155.17
$175	2,973.72	2,744.00	−229.72	3,078.83	3,430.00	+351.17
$185	2,973.72	2,901.80	−71.92	3,078.83	3,626.00	+547.17
$195	2,973.72	3,057.60	+83.88	3,078.83	3,822.00	+743.17

Item	Yield of 30 hundredweight (1.68 short tons)			Yield of 2 tons (2.24 short tons)		
	Cost	Return	Profit or loss	Cost	Return	Profit or loss
Price per ton						
$155	$3,271.54	$3,603.75	+$332.21	$3,501.21	$4,860.80	+$1,359.59
$165	3,271.54	3,836.25	+564.71	3,501.21	5,174.40	+1,673.19
$175	3,271.54	4,068.75	+797.21	3,501.21	5,488.00	+1,986.79
$185	3,271.54	4,301.25	+1,029.71	3,501.21	5,801.60	+2,300.39
$195	3,271.54	4,533.75	+1,262.21	3,501.21	6,115.20	+2,613.99

NOTE.—Figures (cost) based on table immediately preceding.

The rates have been fixed on a conservative basis to allow for replacements where necessary.

SETTLER'S LABOR

In order to arrive at the true cost of production, an endeavor has been made to ascertain the actual outgoings incurred by a man who does the whole of the work of his block with the exception of additional labor at harvest time. It is then necessary to add a sum to represent the value of the settler's labor. No definite basis has been laid down, the figure varies from $17 to $24.30 per week. The amount shown in this statement is arrived at by the following method. Allow $21.85 per week less $2.40 per week for rent of house, which is included in the capitalization of the block. The highest basic wage in the industry up to May, 1927, was $23.10 per week (for expert pruners) less $3.40 per week deduction if a 4-room house is supplied. On an average, the wage ranges from $18.95 per week outside of Renmark and Mildura to $22.10 per week in those districts.

FLUCTUATING EXPENSES

Additional manure.—To obtain a higher yield per acre than 1.1 to 1.4 short tons it is necessary to increase the quantity of superphosphate used. Taking 0.22 short ton per acre as the minimum, allowance has been made for 0.45 short ton to produce a crop of 1.7 short tons and 0.50 to 0.56 short ton to produce a crop of 2.2 short tons. Growers are not yet fully aware of the best methods of using superphosphate to obtain increased tonnage, or the quantities to apply.

The average grower sows 0.22 short ton per acre and hopes for a crop of 1.1 short tons or better, but very few have studied the science of soil fertilization Where careful attention has been paid to this phase of the production question, crops averaging 1 7 and 2 2 short tons of fruit per acre have been obtained fairly consistently

The figures shown in the estimated cost of production in a 15-acre block are not to be taken as an indication of the commission's recommendation of standard practice in manuring, this is a matter for advice from the scientist who has studied the problem in its relation to soil requirements and growth of the vine, and who has made experiments and tested theories in this connection

While explanation of all these expenses is not being given, explanation with regard to labor is as follows Some growers pay more than $21 70 per short ton—some, less A great deal depends on the class of man employed for picking Casual labor is employed, and some growers have considerable difficulty in obtaining the best results Where everything runs smoothly and efficiently, a good grower can get his crop off for a payment of $21 70 per ton in addition to his own labor It must be borne in mind that a settler on a 15-acre block performs a considerable part of the labor on the block himself

Sundry harvesting expenses ($2 61 per short ton) —This includes the estimated cost of olive oil and carbonate of potash for cold dip, or caustic soda and fire wood for hot or modified hot dip For cold dip the cost would be slightly higher than for hot dip

INTEREST ON CAPITAL

This allowance (6 per cent on $583 per acre) is based on the estimated present-day value of a block in bearing It is considered that a grower is entitled to a return of 6 per cent interest on his capital The basis for arriving at the amount shown has already been discussed The majority of growers have to pay at least 6 per cent interest on the balance due on their blocks, soldier settlers usually pay only 5 per cent

INTEREST ON PRODUCTION COSTS

Most growers are unable to obtain loans direct from the banks to enable them to produce their crops The have to borrow from the packing sheds or agents, who charge 8 per cent as their rate of interest

Two years elapse from the time when a crop is first started to the date of final realization, and the packing sheds advance to growers monthly to enable them to carry on On an average, the packing sheds estimate that growers financed in this way pay interest on the full advance for a period of nine months, so the 8 per cent has been added for that period

For comparison, a statement of costs of production on another allotment is given where yields are decidedly above average, namely 1 8 short tons. The average in Australia is about 1 4 short tons

ACTUAL RESULTS OF A 20-ACRE BLOCK

Figures have been obtained for a 20-acre block, of which 18 acres are planted with sultanas The 1926–27 expenses, when the block had reached full bearing, were as follows

	Expenditures
Water rates and extra	$440 00
Shire rates	47 60
Vineyard protection	3 65
Insurance	42 65
Repairs and renewals	99 00
Dip and spray materials	199 00
Manure	359 00
Cost of working (including horse feed, cultivating, pruning, harvesting, and drying, depreciation, etc.)	2,373 00
Interest on capital, 6 per cent on $10,692 (figure supplied by grower)	642 00
Total	4,205 90

The total yield was 33.4 short tons of sultanas from 18 acres, equivalent to just over 1.85 short tons per acre, and the cost of production per short ton was $117. If sultanas average $173 per short ton in the sweat box, as is anticipated for this year, this block will return a net profit of $1,706 after paying 6 per cent interest on capital.

In all the above instances cited, it will be seen that the commission concluded that costs would range over $194 per acre and their general opinion was as follows:

> Growers averaging 1.4 to 1.7 short tons per acre should, on a sweat-box return of $1.61 per ton, make a profit over and above living expenses and interest on capital if their costs are kept down to a figure which will give efficient results, without depriving the block of any necessary expenditure. On the other hand, there are blocks which are definitely incapable of producing a better average crop than 1 ton per acre.

In comparison with the above official outline of costs, many people closely associated with the industry would estimate costs considerably lower. For instance, such claims are that dried fruits can be produced, with a fair profit, on a return of $156 per acre. Many could not meet all expenses, but such people contend that part of their decrease would be overcome by gradual extensions of more efficient producers.

On one point it seems practically agreed in the trade, and that is that approximately $122 per acre return is the minimum at which growers could recover their "out of pocket" expenses, without allowances for depreciation or other capital charges, but with a bare existence to the owner. The basis of one such estimate of prime cost on a 20-acre lot (1 acre planted with lucerne to supply fodder) is as follows:

Per acre costs	
Manure	$12 15
Spray and harvest materials	9 72
Water and shire rates	19 40
Harvesting wages	24 30
Owner's living and his labor	55 85
Total	121 42

While this schedule may be open to some criticism for omissions, it undoubtedly sums up the general view of many people in the industry.

Labor costs of harvesting are expensive, partly owing to the system of drying under covered sheds made necessary by occasional rainfall during the drying season, consequently, $21.70 per short ton, in addition to owner's help in harvesting, is lower than the average

There is a tendency now to hire pickers on contract, by which such costs are sometimes almost cut in half

Weather conditions should also be mentioned in connection with costs and returns Occasionally serious rainfalls occur during the drying season, with attendant heavy losses Frosts also occasionally occur in the early season Difficulties with alkaline soil also add to costs but that will be mentioned later The trade claims that a large part of the high cost is due directly and indirectly to labor conditions As an instance, it is mentioned that coal, f o b Redcliffe, costs $12 99 per short ton High customs duties are also blamed as being direct and indirect means of causing high costs of production

MARKETING AND PRICES

Australian consumption of raisins and currants is about 12,500 tons annually In 1928–29, a bumper season, 80,174 short tons were produced, consequently, an export quota was set of 82 per cent sultanas, 74 per cent currants, and 66¾ per cent lexias By fairly complete organization of marketing arrangements (which will be described later) the Australian requirements are sold at much higher prices than are secured for export About 90 per cent of all exports go to Great Britain, some quantities go to other British Dominions

The trade estimates that on exports to England costs from sweatbox prices (prices received by growers on delivery to packing sheds in boxes) to English realization prices are approximately $61 per short ton plus 10 per cent of realized prices Consequently when, for instance, sultanas are being sold in England at $154 per short ton (price February 20, 1930), producers returns would be

Realization price in England		$154 00
Less export expenses	61 00 15 40	
		76 40
Return to grower		77 60

With an average production of 1 4 short tons per acre the returns per acre would be $108 60 Then, in addition, on the 20 per cent of dried fruit sold in Australia probably net returns are about $65 per ton more, making a further contribution to the whole average price of about $13 per ton Consequently, net return to grower would be slightly over $121 60 per acre for sultanas, even at present low prices, given an average crop

The London realizations for lexias were as follows, based on a price of $100 on February 6

Realization price in England		$100
Less export expenses	$61 10	
		71
Return to grower		29

Here it will be seen that results are truly disastrous, despite comparatively good yields per acre and higher domestic prices

The realization price on currants in London was $155 on February 20, and, computed on the same basis as above results, would be about equal to the net return for sultanas

Average prices received in London for raisins and currants during recent years were as follows

AVERAGE PRICE IN LONDON FOR SULTANAS, LEXIAS, AND CURRANTS

Year	Price per short ton		
	Sultanas	Currants	Lexias
1924-25	$126	$121	$126
1925-26	368	163	167
1926-27	233	185	188
1927-28	153	185	145
1928-29 [1]	180	188	154
Prices (for week only) Feb 6, 1930	155	158	100
Prices (for week only) Feb 20, 1930	154	155	----------

[1] Average to the end of December, since then prices have been easier

In comparison with the above abbreviated trade method of computing it will be of interest to note the tables of expense compiled by the commission, since they indicate the definite expense items to various destinations and indicate clearly the comparative returns from various markets Though these tables were compiled in 1927, the expense items are practically the same now, except for a few items which will be noted, and they still portray relative returns from markets mentioned, though absolute prices and returns to grower are decidedly lower Particular items of expenses shown in tables now altered are as follows, showing the rate of export levy per pound collected during the season 1927–28 on dried fruits exported from Australia Sultanas, $0 25, currants, $0 125, lexias, $0 107

The rate of levy per pound fixed in respect to fruit shipped from the harvest season 1928–29 is as follows Sultanas and currants, $0 21, lexias, $0 107

Since realized prices are lower, naturally commission based on percentage of realized prices is lower accordingly

LEXIAS SOLD IN AUSTRALIA AT AVERAGE 1926 PRICE OF $286 60 PER TON

Item	South Australia	Victoria
Price of 1 short ton of lexias at $286 60	$286 60	$286 60
Charges		
10 per cent trade discount	28 66	28 66
3 per cent cash discount	7 74	7 74
Interstate charges	11 70	5 00
Head office levy	54	54
State board levy	2 00	98
Charges—Continued		
Commission 5 per cent	$11 80	$12.19
Freight and cartage	9 10	10 85
Packing costs	26 03	21 70
Packing shed insurance	--------	1 30
Total charges	97 57	88 96
Net return	189 03	197 64

SULTANAS SOLD IN AUSTRALIA AT AVERAGE 1926 PRICE OF $347 32 PER TON

Item	South Australia	Victoria	Item	South Australia	Victoria
Price of 1 short ton of sultanas at $347 32	$347 32	$347 32	Charges—Continued		
			Commission 5 per cent	$14. 46	$14. 84
Charges			Freight and cartage	9 10	10 85
10 per cent trade discount	34 73	34 73	Packing charge	26 03	21 70
3 per cent cash discount	9 37	9 37	Packing shed insurance		1 30
Interstate charges	11 70	5 04	Total charges	107 93	99 35
Head office levy	54	54	Net sweat box return	239 39	247 97
State board levy	2. 00	98			

REALIZATION CHARGES ON DRIED FRUIT FROM VICTORIA

Item	Sultanas	Currants	Lexias
TO CANADA			
Selling price, c i f	$268 75	$177 68	$182 14
Less—			
Brokerage, 2½ per cent	6 72	4 45	4 55
Overseas freight	13 57	13 57	13 57
Exchange, 0 875 per cent	2 32	1 52	1 56
Marine insurance	1 29	87	87
Shipping charges, Melbourne	1 07	1 07	1 07
Export levy	5 04	2 50	2 50
State board levy	98	98	98
A D F A levy	54	45	54
Selling agent's commission 4 per cent	9 49	6 09	6 26
Rail carriage to seaboard	4 34	5 00	5 00
Packing and wiring	21 34	22 41	21 34
Insurance in shed	1 07	1 07	1 07
Total charges	67 77	60 07	59 31
Net return to grower	200 98	117 61	122 83
TO UNITED KINGDOM			
Selling price delivered ex store, London	242 86	182 14	182 14
Less—			
Discount and brokerage, 3 per cent	7 29	5 46	5 46
Tare, 35 32 pounds per short ton	4 35	3 26	1 63
Dock charge and rent average	8 66	8 66	8 66
Freight to London	13 57	13 57	13 57
Marine insurance	85	85	85
Shipping charges etc	1 07	1 07	1 07
Export levy	5 04	2 50	2 50
Selling agent's commission 5 per cent	10 10	7 34	7 42
Exchange on money	54	22	22
State board levy	98	98	98
A D F A levy	54	54	54
Rail carriage to seaboard	5 00	5 00	5 00
Packing and wiring	21 29	22 41	21 29
Insurance on shed	1 07	1 07	1 07
Total charges	80 33	72 93	70 24
Net return to grower	162 53	109 21	111 90
TO NEW ZEALAND			
Selling price f o b, Melbourne	212 86	169 23	145 36
Less—			
3 per cent discount	7 29	5 08	4 36
Brokerage, 1¾ per cent	2. 95	2 05	1 76
Company's selling commission, 4 per cent	9 30	6 48	5 57
Melbourne shipping charges	1 07	1 07	1 07
Export levy	5 04	2 50	2 50
State board levy	98	98	98
A D F A levy	54	54	54
Railage to seaboard	4 96	4 96	4 96
Packing and wiring	21 34	22 41	21 34
Insurance sheds	1 07	1 07	1 07
Total charges	54 54	47 14	44 15
Net return to grower	188 32	122 09	101 21

[1] Tare, 17 66 pounds per short ton

The packing cost is higher in South Australia on account of private sheds which pack a large quantity of the fruit and charge up to $30 per short ton for packing, as is done by the cooperative sheds The latter return any profits to shareholders, the former do not

The figures regarding export fruit have been taken from actual sales for fruit shipped from Mildura The packing charge ($21 29 for raisins and $22 41 for currants) is the actual charge appearing on the account sales A fumigation fee ($2 16 per ton) is an additional charge on fruit sent to London

SUMMARY OF NET SWEAT-BOX RETURNS

Item	Sultanas	Currants	Lexias
By sales in Canada	$200 98	$117 61	$122. 83
By sales in Great Britain	162 53	109 21	111 90
By sales in New Zealand	188 32	122. 09	101 21
By sales in Australia			
South Australia	239 39	151 81	189 03
Victoria	247 97	160 46	197 64

The preceding table clearly shows the higher prices which accrue to growers by selling in the home market, and which are obtained by market control and organization of marketing

EXPORT MARKETS

The present export outlets for Australian dried fruits are almost entirely bound up with imperial preferences Whereas shipments, for instance, to Germany, are not even considered since Australian dried fruit would have to bear the general tariff rates which are considerably above customs levy against United States raisins, Australian exports of dried fruit to England have preference over non-Empire products as follows (per short ton) Sultanas, $30, lexias, $30, currants, $8 67 If the Australian raisin industry were deprived of preference in the principal consuming market of the Empire, the outlook for the producer under the economic conditions obtaining in Australia would be most serious

The position in regard to the preferential tariff in the United Kingdom on currants and raisins is set out in the following quotation from the report of the imperial economic committee on marketing and preparing for market of foodstuffs produced in the oversea parts of the Empire

> Currants have for several centuries been classed as a dutiable article on importation into the United Kingdom The rates of duty on currants before 1890 were, on the average, about the same as those levied upon raisins In that year, as a result of a commercial treaty between His Majesty's Government and the Greek Government, the duty on currants was reduced from 1 5 to 0 43 cent per pound In effect, this reduction gave Greece an important preference in the United Kingdom market over other countries supplying other dried vine fruits In 1919 a preferential rebate of one-sixth of the duty was granted to Empire currants In 1925 this preference was increased to 0 43 cent per pound by the admission of Empire currants duty free
>
> Raisins also have been dutiable on importation into the United Kingdom for a very long period In 1823 a definite colonial preference on raisins appeared in the customs schedule The lowest rate applied to foreign raisins was 4 3 cents per pound, whilst fruit from the Cape of Good Hope or from the East India Co 's territories was charged 2 1 cents per pound From 1823 to 1853 a pref-

erence of about 50 per cent on the lowest duty charged on foreign raisins was allowed on raisins produced in British possessions. Preference on Empire dried fruits disappears from the customs schedule from 1853 until September 1, 1919, when a rebate of one-sixth of the duty of 2.2 cents per pound was introduced. In 1924 the duty on raisins was decreased to 1.3 cents per pound, thus automatically decreasing the value of the preference. In 1925 the preference was increased to 1.5 cents per pound by the removal of the duty on Empire-grown raisins.

Australia has a reciprocal tariff treaty with Canada which gives Australian raisins and currants preference in Canada as follows: Sultanas, lexias, and currants, 1½ cents per pound, or approximately $60 per ton. Australia has no preferential treaties with New Zealand or South Africa; the latter country is a producer of raisins but buys some Australian currants.

AUSTRALIAN EXPORTS OF RAISINS AND CURRANTS, 1925–1929

[In short tons]

Country	1924–25	1925–26	1926–27	1927–28	1928–29[1]
Sultanas to—					
Great Britain	14,538	12,815	31,709	12,432	24,613
New Zealand	1,247	1,598	1,976	1,327	1,027
Canada	9	292	984	793	1,384
South Africa	2	----	----	----	----
Other destinations	49	143	131	142	110
Total	15,845	14,848	34,800	14,694	27,134
Currants to—					
Great Britain	7,034	9,069	5,327	656	10,760
New Zealand	393	347	541	521	391
Canada	178	455	2,085	2,463	1,420
South Africa	179	115	269	308	220
Other destinations	190	184	235	184	137
Total	7,974	10,170	8,457	4,132	12,928
Lexias to—					
Great Britain	3,595	722	2,292	2,466	1,765
New Zealand	26	12	11	4	4
Canada	----	122	736	167	390
Other destinations	31	25	22	26	15
Total	3,652	881	3,061	2,663	2,174
Total to—					
Great Britain	25,167	22,606	39,328	15,554	37,138
New Zealand	1,665	1,957	2,528	1,852	1,422
Canada	187	869	3,805	3,423	3,194
South Africa	181	115	269	308	220
Other destinations	271	352	388	352	262
Grand total	27,471	25,899	46,318	21,489	42,236

[1] Incomplete.

BRITISH IMPORTS OF RAISINS AND CURRANTS, 1925–1929

[In short tons]

Item	1925	1926	1927	1928	1929
From all sources:					
Currants	65,432	65,365	68,570	61,511	61,896
Raisins	63,136	65,082	89,165	78,876	90,374
Total	128,568	130,447	157,735	140,387	152,270
From Australia:					
Currants	7,612	8,481	5,394	702	[1] 13,432
Raisins	19,717	12,233	31,642	16,368	40,311
Total	27,329	20,714	37,036	17,070	53,743

[1] From British countries, Australia mainly.

English consumption is, roughly, 140,000 short tons of raisins and currants yearly, and in the 1929 season Australia exported about 56,000 short tons, or approximately 40 per cent of the total English requirements, although at the 1st of January, 1930, approximately 17,920 short tons remained still unabsorbed. Clearances have been greatly facilitated by the smaller American crop. The outlook for shipments in 1930 is only about 8,960 short tons less than a year ago, but in addition there will be at least 11,200 short tons of hold-over Australian stocks in England, and there is no assurance of a second year American crop shortage. Consequently, the export season started under exceedingly depressed circumstances, London sultanas were ranging about $154 per short ton, lexias at only $100, and currants $155 for the middle of February, the commencement of the 1930–31 export season.

AVERAGE PRICE, PER SHORT TON, OF SULTANAS, CURRANTS, AND LEXIAS, 1925–1928

Season	Sultanas		Currants		Lexias	
	Short tons	Average price	Short tons	Average price	Short tons	Average price
1924–25	14,437	$330	7,034	$149	3,595	$155
1925–26	12,815	314	9,069	184	722	188
1926–27	31,528	261	5,327	207	2,292	211
1927–28	12,429	171	656	270	2,456	162

SHIPMENTS OF AUSTRALIAN DRIED FRUITS TO PRINCIPAL PORTS

[In short tons]

Season	Total	Exported to—				
		London	Liverpool	Glasgow	Bristol	Hull
1924–25	25,166	20 242	3,619	666	567	73
1925–26	22,606	17,161	3,955	828	360	304
1926–27	39,328	28,052	8,108	1,450	961	757
1927–28	15,555	11,775	2,919	424	395	41
1928–29	37,138	26,575	7,410	2,047	949	157

EXPORTS TO CANADA

The effect of the reciprocal treaty with Canada in stimulating sales of dried fruit has been rather disappointing to Australia, owing to the fact that California continues to enjoy the bulk of the trade, despite the rather heavy preferential treatment.

CANADIAN IMPORTS OF RAISINS AND CURRANTS

[In short tons]

Year ended Mar 31—	Currants	Raisins	Total
1926	2,445	16,906	19,351
1927	2,305	19,749	22,054
1928	3,096	22,355	25,451
1929	3,061	21,828	24,889

AUSTRALIAN EXPORTS OF CURRANTS AND RAISINS TO CANADA

[In short tons]

Season ended in February—	Currants	Raisins		Total
		Sultanas	Lexias	
1925-26	455	292	122	869
1926-27	2,086	984	736	3,806
1927-28	2,463	793	167	3,423

During the 1929 season there has been a very marked increase in Canadian imports from Australia, owing to the smaller California crop

Owing to proximity, Australia obtains a considerable portion of the New Zealand trade in dried fruits without preference, though it is claimed in Australia that competition of American raisins makes business difficult

The importations of currants and raisins into New Zealand during the past four years were as follows

NEW ZEALAND IMPORTS OF CURRANTS AND RAISINS, 1925–1928

[In short tons]

Calendar year	Currants	Raisins	Total
1925	825	4,024	4,849
1926	526	4,521	5,047
1927	728	4,613	5,341
1928	642	4,440	5,082

The following shipments of Australian currants and raisins have been made to New Zealand during the last four seasons and during the present season to March 1

AUSTRALIAN EXPORTS OF CURRANTS AND RAISINS TO NEW ZEALAND, 1925–1929

[In short tons]

Season	Currants	Sultanas and lexias	Total
1924-25	393	1,272	1,665
1925-26	347	1,611	1,958
1926-27	541	1,987	2,528
1927-28	521	1,332	1,852
1928-29 (to Mar 1)	432	1,239	1,671

Small shipments of Australian currants are made to South Africa, but practically no raisins

TRADE IN THE EAST

A recent statement of the Australian Dried Fruit Export Control Board regarding exports to the Far East gives the present viewpoint

> That there is a considerable trade in dried fruits in China and Japan is undoubted, but inquiries and information available indicate that this is being done in the lowest priced qualities, and the reports which appear as to the possibilities of the eastern markets should be accepted with considerable reservations as to the possibility of these countries absorbing any quantity of Australian fruit at prices which would be remunerative to growers, or at anything approaching rates which are possible in Great Britain, Canada, and New Zealand

ORGANIZATION OF THE INDUSTRY

The Australian dried-fruit industry is highly and elaborately organized for the purpose of putting into effect its aims in marketing, and the organizations are surprisingly complete in that they include nearly all production

Their aims are, briefly, to sell in Australia as large a percentage of the crop as possible at a high price compared with export sales, to obtain equity in the allotment of a share in this home market between the producing States, to set up and maintain export grades, to erect and control sales organization in export markets, to conduct publicity and other activities on behalf of the whole industry

In view of the amounts of money that the State and Federal Governments have directly or indirectly invested in the industry, they have accorded desired legislation for the formation of organizations For instance, it violates the Federal constitution for States to forbid or interfere with interstate trade, but the Federal Government found a way out of this troublesome problem by passing a law making it mandatory to obtain a license for interstate shipments of dried fruits and vesting the power of issuing such licenses in safe hands

The Australian trade takes great pride in the organization of the industry One Australian who recently made a survey of the California raisin industry stated that "The California raisin grower has an advantage of soil, climate, water supply, and the benefits of cheaper labor costs The Australian grower has the advantage of organization and preferential trade treaties "

The Australian organizations are the Australian Dried Fruits Association (A D F A), Commonwealth (export) Dried Fruits Control Board, and State control boards in Victoria, South Australia, New South Wales, and Western Australia

The multiplicity of boards is due to limitation of the Federal constitution in respect to trade control in the various States The dried fruit industry and other producing industries are hopeful of an amendment to the constitution which will permit Federal organization of industry free from such limitations as now exist As an example of how these restrictions affect the industry it may be stated that one State may decide to export 75 per cent of its produce in order to maintain a stable market in the Commonwealth for the remaining 25 per cent An adjoining State may decide to export only 50 per cent of its produce and exploit the first State with the remainder Thus, the efforts to effect stability of price in one State may be nullified by the action of producers in the adjoining State Because it produces only a small part of the total and yet consumes nearly 50 per cent of the lot, New South Wales contends that its producers should have a larger percentage of the home market than do the producers in Victoria and South Australia However, if Victorian producers can not ship to States which produce very little, their export quota would amount to nearly 100 per cent—which would defeat the whole idea of the pool

AUSTRALIAN DRIED FRUITS ASSOCIATION

The Australian Dried Fruits Association (A D F A) is a voluntary organization embracing 90 per cent of the producers in all States Its main duties are to fix prices and terms and conditions of sale of dried fruits in Australia Control of its operations are vested in a board of five members representative of growing and packing interests The association also acts in all general matters affecting the industry outside the scope of the statutory boards

This association includes in its membership not only cooperative organizations but private companies as well, and that is claimed to be its strong point, namely, that all interests of importance are united in it It makes a levy of $0 54 per ton on growers

STATE BOARDS

The various States have formed boards under authority given under State legislative enactments Such legislation in Victoria, South Australia, and Western Australia took place in 1924, while New South Wales passed an act in 1928 and formed a board

The State boards have the responsibility of determining the quotas of each class of fruit to be marketed in the Commonwealth and exported overseas, and of giving quotas to the individual sheds The consumption of fruit in the Commonwealth, due to stability of price, is stable and shows a small margin of increase each year Tentative releases are made as the crop is harvested and delivered to packing sheds and a final export quota is declared when the full crop is ascertained Compulsory removal of surplus stocks from the home market enables the A D F A to maintain prices at a high level in the Commonwealth and to ensure stability of prices and profits The State boards also make a levy (per short ton) on growers as follows New South Wales, $2 53, Victoria, $0 98, South Australia, $2, Western Australia, $2 53

Since they are organizations constituted under State authority, they are able to obtain publicity through public schools For instance, New South Wales has planned an extensive cooking week under school auspices with expert cooks and cookery books

TOTAL LEVIES

Total levies of the A D F A , the export control board, and the State boards vary according to the States of origin and according to whether exported or sold locally, but amount to nearly $6 52 on exports and $2 17 on the 20 per cent domestic sales

To summarize, the following are the prevailing rates A D F A levy per ton, $0 54, State board levies, listed above, in addition, for export (covering 80 per cent of crop) sultanas and currants per ton, $4 34 and $2 17, respectively

Publicity activities of the A D F A and the various State control boards have been briefly mentioned The export control board last year spent $97,200 in England on advertising, the major part of their total levy This payment is under the Australian trade publicity scheme in Great Britain on behalf of dried fruits, dairy produce, and other primary produce The dairy organization is, incidentally, paying about $24,300 annually on this joint scheme As will be noted from the yearly balance sheet of the control board, smaller sums are also being expended in Canada and elsewhere

Reference should also be made here to the benefits to Australian dried-fruit publicity under the Empire Marketing Board, which operates in England on behalf of the produce of the Dominions and Colonies

PROBLEMS AFFECTING THE INDUSTRY

SOIL AND DRAINAGE

There is a tendency throughout the whole Murray River Basin, including such tributaries as the Murrumbidgee, for alkaline soil conditions to develop The accepted geological theory is that this area was at one time under sea, which might explain alkaline constituents in the soil In most parts of this basin there is a comparatively shallow soil which is underlain by a hardpan of varying thickness, somewhat impervious to water and containing salts In the Mildura area the old settlement has had some difficulty The old canals were not cement lined, and seepage from them caused important areas to go out of production Over the whole area drainage of the irrigation water constitutes a problem It was earlier thought that a remedy had been found by blasting out large sumps through the hardpan for practically each holder, or where drainage was convenient However, it was found that generally the sand below the hardpan had little natural drainage, and during a recent visit most such sumps were full of water To work out a really satisfactory drainage system will entail expense which many settlers, in the old area particularly, may be unable to afford, with low prices for dried fruit The newer areas of Red Cliff and Merbein are being better provided for by the Government, besides, their soils are still comparatively new to irrigation and have as yet developed fewer of these unsatisfactory conditions

Soil conditions on new settlements in New South Wales across the river are practically identical Similar conditions also exist on the South Australian side

PACKING PROBLEM

The migration commission in their report particularly stressed the lack of efficiency of packing sheds in general, though there are a number of high-grade sheds with adequate volume for efficient management The charges for processing and packing fruit vary considerably in the different settlements At Mildura, for instance, all sheds except two charge $21 33 per short ton for packing sultanas and lexias The two exceptions charge $25 67 per ton The charge at Renmark is $30 per ton, at Berri $27 66 per ton, and at Waikerie $21 43 per ton At Nyah the rate is $25 89 per short ton (of which $5 40 is rebated by the cooperative shed), and at Woorinen (one shed only, and that cooperative), $19 50 less $3 79 rebate Currants cost $1 07 per short ton extra for packing The South Australian rates and those for Nyah and Woorinen include all costs from sweat-box to railhead, whereas the Mildura sheds charge insurance of $1 29 and cartage of $0 62 in addition to the $21 29 for packing and wiring

The Migration Commission summarizes conditions as follows

> South Australia registered, in 1927, 67 packing sheds to handle 13,000 short tons of fruit, an average of about 194 short tons per shed Forty-nine of these sheds are situated on the River Murray
>
> The following statement shows how the pack was distributed
>
> 40 sheds packed under 112 short tons each
> 13 sheds packed between 112 and 220 short tons
> 6 sheds packed between 220 and 330 short tons
> 2 sheds packed between 330 and 440 short tons
> 2 sheds packed between 560 and 670 short tons
> 2 sheds packed between 890 and 1,000 short tons
> 1 shed packed between 1,450 and 1,560 short tons
> 1 shed packed over 2,240 short tons

One shed packed approximately one-fifth of the total for the State, and there were only six sheds which packed 560 tons or more each

Although the position in Victoria is not quite so bad as in South Australia, it is open to similar objections For the 1927 season, there were 44 registered packing sheds including branch sheds to deal with a pack of 46,480 short tons of fruit an average of 1,056 tons per shed The capacity of the sheds is indicated by the following statement

19 sheds packed under 112 short tons
4 sheds packed between 112 and 220 short tons
1 shed packed between 330 and 440 short tons
1 shed packed between 560 and 670 short tons
2 sheds packed between 670 and 780 short tons
1 shed packed between 780 and 890 short tons
1 shed packed between 1,000 and 1,120 short tons
3 sheds packed between 1,450 and 1,680 short tons
1 shed packed between 2,000 and 2,120 short tons
4 sheds packed between 2,240 and 2,800 short tons
4 sheds packed between 2,800 and 3,360 short tons
1 shed packed between 3,920 and 4,480 short tons
2 sheds packed between 4,480 and 5,000 short tons

The commission also blames grading difficulties on the unnecessarily large number of sheds Its remarks are as follows

> Export markets demand "long lines" of fruit of true type and even grading In the majority of small sheds this is not possible on account of the small quantity of fruit packed and the small parcels of different grades are unattractive to the large buyer The latest reports on the marketing of this year's fruit overseas indicate that there is still room for considerable improvement in the grading With so many sheds operating, it is impossible to give the market what is desired

For further information regarding grades, it would be necessary to obtain trade opinion in England, where most of the export distribution is made

CONCLUSION

It might be concluded from various opinions given that only the more efficient growers on rather good land can collect total costs and a bare living when seat-box prices are below $130 18 per short ton Many of the growers require possibly $152 per ton, and only efficient growers can collect out-of-pocket expenses when prices are around $108 48 per ton, most of them believe they require over $130 18 at local packing sheds It would seem certain that such low prices would not only continue to check extensions but would cause reductions in acreage—how much it is difficult to estimate Present prices average far below this figure and are causing anxiety In this connection it should be said that the larger part of the men controlling the industry are of excellent type and are resourceful, and if forced to reduce costs they will accomplish something As has been mentioned, there is a tendency now to reduce harvesting costs by the introduction of piecework It is difficult to find alternative crops of a remunerative nature, however, if grape culture is abandoned, admittedly a critical situation has developed Prices now, at the commencement of the export season, are ruinously low, another heavy crop (although about 10 per cent below last year), is being harvested, unsold London stocks of about 13,440 short tons remain, and prices continue to decline. To what extent this condition may be temporary remains to be seen

To gain an idea of current local opinion, it may be helpful to quote from a newspaper article which appeared as this report was being written, naturally this article was prompted by the recent sharp price decline in London and reflects local reaction to it

Because of lower prices for dried fruit overseas and increasing dependence on those markets because of a mounting production, an economic situation has arisen in Mildura settlement that is causing anxiety In the Red Cliffs section alone about 9,000 acres have been added to dried-fruit production through soldier settlements, and with a yearly output of approximately 17,900 short tons The Government has come in for criticism for having committed the industry to such a heavy marketing undertaking without proper consideration of the outlet

Both soldier and older civilian settlers are now suffering The soldiers complain that their blocks (averaging about 16 acres) do not give sufficient gross income because of lower prices, and are seeking enlarged holdings under the home-maintenance plan

The values of civilian blocks in the older parts of the Mildura settlement have undergone severe deflation from postwar boom levels Blocks valued at $729 per acre and more in that period, and before the effect of soldier dried-fruit production was felt, have been sold as low as $243 an acre

It is recognized that the difficulties will be greatest in those cases where production is 1½ tons an acre and less, and that the safety mark will be about 2 tons an acre on the basis of present and prospective prices Most settlers are striving to increase output an acre, but some are faced with soil limitations

The position of the growers is summarized thus Prices in the sweat boxes for the 5-year period 1907–1911 were little less than for 1924–1928, but in the first period wages were from $1 45 to $1 70 a day, and water charges $6 an acre, compared with wages from $3 25 to $3 75, a day, and water charges $15 80 an acre.

DRIED FRUITS EXPORT CONTROL BOARD

FINANCE STATEMENT FROM JULY 1, 1928, TO JUNE 30, 1929

[London figures included from Apr. 1, 1928, to Mar. 31, 1929]

Receipts		
July 1, balance forwarded		$89, 698
Collection from export levies—		
Season 1927–28 to Mar. 2, 1929	$52, 721	
Season 1928–29 to June 30, 1929	155, 061	
		207, 782
Sundry receipts		
Interest on deposit and balance in Australia and at London	3, 439	
Sundry collections	10, 225	
		13, 664
Expenditure		
In Australia (administrative)—		
Board fees	4, 787	
Traveling expenses	4, 066	
	8, 853	
Salaries	6, 969	
Stationery, office, and general expenses	1, 295	
Office rent	1, 011	
Postage and telegrams	825	
		18, 953
In Great Britain—		
Fees of London agency	4, 105	
Salaries	21, 621	
Stationery, office and general expenses	4, 543	
Office rent	4, 422	
Postage and telegrams	972	
		35, 663
Australian trade joint publicity scheme in Great Britain		97, 200
Development of Canadian and eastern markets		4, 193
Balances (June 30, 1929)—		
Cash on deposit and current account—		
In Australia	133, 191	
In London (Mar. 31, 1929) and in transit	21, 944	
		155, 135
		311, 144

U. S. DEPARTMENT OF COMMERCE
R. P. LAMONT, Secretary
BUREAU OF FOREIGN AND DOMESTIC COMMERCE
WILLIAM L COOPER, Director

CREDIT EXTENSION AND CAUSES OF FAILURE AMONG PHILADELPHIA GROCERS

Trade Information Bulletin No. 700

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FOREWORD

This study of credit conditions and causes of failure among grocery retailers in Philadelphia is one of a series of such surveys conducted by the Domestic Commerce Division of the Department of Commerce. A similar study was made in Louisville in 1929 and a report published at that time, as was a report on failures among restaurants in Kansas City. An inquiry into the causes of failure among retail merchants in Newark, N. J., is in progress. These studies are an outgrowth of the national retail credit survey which was begun in 1928 at the request of the National Retail Credit Association, an organization representing many thousands of retail merchants in all sections of the country.

The purpose is to secure credit and other information from a large number of establishments and to set it forth, without recommendation, to serve as a chart or guide for the individual merchant in carrying on his business. The individual business man, knowing his own experience in these matters, can compare it with that of others and can govern himself accordingly.

The present report focuses attention on the credit policies of 1,371 grocery stores in Philadelphia, all going concerns, and the causes contributing to failure of 35 which passed through bankruptcy.

The Department of Commerce was represented in this work by Dr. W. C. Plummer and Paul O. Ritter. It had the cooperation of the School of Law and the Institute of Human Relations of Yale University, which helped to finance the project. Prof. William O. Douglas represented Yale University. The study had the indorsement of the Pennsylvania, New Jersey, and Delaware Wholesale Grocers' Association, the Frankford Grocers' Association, and the Retail Grocers' Association of Philadelphia. Special assistance was received from the following individuals: R. G. Bursk, Pennsylvania, New Jersey, and Delaware Wholesale Grocers' Association; Rolf Nugent, Russell Sage Foundation; George Brodbeck, clerk, United States District Court; G. W. Robbins, Domestic Commerce Division of the Bureau of Foreign and Domestic Commerce; and Edwin B. George, manager of the Bureau's district office at Philadelphia.

W. L. Cooper, *Director*,
Bureau of Foreign and Domestic Commerce.

May, 1930.

CREDIT EXTENSION AND BUSINESS FAILURE

A STUDY OF CREDIT CONDITIONS AND CAUSES OF FAILURE AMONG GROCERY RETAILERS IN PHILADELPHIA, PA.

By W C Plummer and Paul O Ritter

SUMMARY

1 Reports from 1,371 independent retail grocery stores in Philadelphia, representing all sizes of stores and all sections of the city, with total annual net sales in 1928 of $29,425,041, show that 40 per cent of total sales were made on credit Of the total of 1,371 stores, 294, or 21 4 per cent, sold for cash only, and 1,077, or 78 6 per cent, sold for both cash and credit

2 The credit losses experienced in extending credit to customers of the 1,077 independent retail grocery stores were 1 5 per cent of credit sales

3 Credit losses varied inversely with the size of stores The range was from an average loss of 8 3 per cent of credit sales for the smallest stores to 0 2 per cent for the largest stores The smallest stores thus had bad-debt losses forty times as great proportionally as the largest ones

4 Credit losses were a comparatively small casual factor in the failure of the 35 bankruptcy cases studied, but such losses were a major cause of failure in 2 cases and a contributing cause in 3 others

5 Losses in real-estate investment and speculation were a comparatively large casual factor Such losses were a major cause in 11 cases A real-estate slump which occurred during the 4-year period studied made this factor stand out more prominently than it would in an analysis covering a longer period of time

6 At the time of their failure, 22 out of the 35 stores studied were financing themselves in part with money borrowed from loan or finance companies or individual money lenders at rates of interest prohibitive for business purposes However, financing under unfavorable terms was not the original cause of the trouble in a single case Borrowing under such terms when in trouble from other causes added to the original trouble, and thus helped bring on bankruptcy in 22 cases out of the total of 35

7 Inexperience was a contributing cause of failure in some instances, but out of a total of 26 for which information on previous occupation was obtained, 20 had been connected previously with the grocery business, as a clerk, owner, or manager

8 Unscientific business methods and practices were important causes of failure Most of those who failed kept no records Many of them never took an inventory One of them had difficulty in making change and made many mistakes Another used poor judgment in signing a long-term lease of a store building at exorbitant rates

9. In a number of cases the grocers who had failed said their trouble was due to competition, particularly chain-store competition; one had stores on both sides of him. However, where competition was keenest, some stores, including independents, were doing good business and apparently were prospering.

CREDIT CONDITIONS

EXTENT OF CREDIT

Reports from 1,371 independent retail grocery stores in Philadelphia, representing all sizes of stores and all sections of the city, with total annual net sales in 1928 of $29,425,041, show that 40 per cent of total sales were made on credit.

Of the total of 1,371 stores, 294 of them, or 21.4 per cent, sold for cash only, and 1,077, or 78.6 per cent sold for both cash and credit. The 21.4 per cent of stores which sold for cash did only 15 per cent of the total business. It is thus evident that, on the whole, the stores which sold for cash only were smaller than those which sold for both cash and credit.

Considering only those stores which did both cash and credit business, it was found that the credit sales were 47.1 per cent of total sales.

Grouping, according to size, the stores doing credit business it is brought out that the larger stores did a much greater proportion of their business on credit than the smaller ones. The range was from an average of 34.9 per cent of total sales on credit for the stores with annual sales from $5,000 to $9,999 to 69.2 per cent on credit for those with sales of $250,000 and over.

EXTENT OF CASH AND CREDIT BUSINESS OF 1,371 INDEPENDENT RETAIL GROCERY STORES, 1928, PHILADELPHIA, PA. REPRESENTING TOTAL SALES OF $29,425,041

Group	Stores	Per cent of total number	Cash sales		Sales on open credit	
			Amount	Per cent of all sales	Amount	Per cent of all sales
Stores selling for cash only	294	21.4	$4,417,791	15.0		
Stores selling for both cash and credit	1,077	78.6	13,227,569	45.0	$11,779,681	40.0
All stores	1,371	100.0	17,645,360	60.0	11,779,681	40.0

EXTENT OF CREDIT BUSINESS OF INDEPENDENT RETAIL GROCERY STORES DOING BOTH CASH AND CREDIT BUSINESS, PHILADELPHIA, PA., 1928

Stores having annual sales of—	Philadelphia		Stores having annual sales of—	Philadelphia	
	Stores	Per cent of sales on credit		Stores	Per cent of sales on credit
Less than $5,000	150	38.4	$100,000 to $249,999	16	48.8
$5,000 to $9,999	201	34.9	$250,000 and over	8	69.2
$10,000 to $24,999	497	35.2			
$25,000 to $49,999	153	41.0	All stores	1,077	47.1
$50,000 to $99,999	52	54.5			

CREDIT LOSSES

The percentage of bad debts on credit sales of the 1,077 Philadelphia stores was 1.5 per cent in 1928. If the credit loss is figured on total sales rather than on credit sales, the loss is 0.7 per cent.

Credit losses varied inversely with the size of stores, that is, the larger the stores the smaller was the proportion of credit losses. This relationship was quite striking. The range was from 8.3 per cent for the stores with sales less than $5,000 to 0.2 per cent for those sales of $250,000 and over. The smallest stores thus had bad debt losses forty times as great proportionally as the largest ones.

Grouping stores according to size of credit loss, it is brought out that there were 133 stores with very small credit loss of less than 0.2 per cent. At the other extreme were 50 stores with the very high loss of 20 per cent or over. A few of the latter group, no doubt, are being hastened into bankruptcy with such losses; the rest of them will be able to stand the shock of such losses because their credit business is a very small proportion of their total business.

BAD-DEBT LOSSES OF INDEPENDENT RETAIL GROCERY STORES, PHILADELPHIA, PA., 1928

Stores having annual sales of—	Stores	Per cent of loss [1]	Stores having annual sales of—	Stores	Per cent of loss [1]
Less than $5,000	150	8.3	$100,000 to $249,999	16	0.4
$5,000 to $9,999	201	6.0	$250,000 and over	8	.2
$10,000 to $24,999	497	3.0			
$25,000 to $49,999	153	1.6	All stores	1,077	1.5
$50,000 to $99,999	52	.9			

[1] Total credit losses divided by total credit sales.

INDEPENDENT GROCERY STORES OF PHILADELPHIA, PA., GROUPED ACCORDING TO SIZE OF CREDIT LOSS

[Credit loss computed by taking the ratio of bad debts to credit sales]

Per cent of loss	Stores	Sales						
		Less than $5,000	$5,000 to $9,999	$10,000 to $24,999	$25,000 to $49,999	$50,000 to $99,999	$100,000 to $249,999	$250,000 and over
Less than 0.2	133	16	24	58	22	6	4	3
0.2 to 0.4	65	2	5	27	12	13	2	4
0.5 to 0.9	111	2	9	45	31	17	7	
1 to 1.9	147	7	12	85	34	8	0	
2 to 2.9	118	10	15	69	19	4	1	
3 to 4.9	127	16	20	70	19	1	1	
5 to 9.9	177	34	49	81	10	2	1	
10 to 19.9	149	39	54	51	4	1		1
20 and over	50	24	13	11	2			
Total	1,077	150	201	497	153	52	16	8

USE OF CREDIT BUREAUS

A comparatively small proportion of grocery stores made use of credit bureaus in carrying on their business. Out of a total of 1,073 stores giving information on this point, 60 used credit bureaus and 1,013 did not.

The stores which used credit bureaus taken as a whole, had a lower average loss than those which did not The average loss of the stores which used credit bureaus was 0.5 per cent and of those which did not 1.9 per cent

CREDIT LOSS OF RETAIL GROCERY STORES PHILADELPHIA, PA, 1928, DISTINGUISHING THOSE USING FROM THOSE NOT USING CREDIT BUREAUS

Stores having annual sales of—	Stores using credit bureaus		Stores not using credit bureaus	
	Number	Per cent of bad debts to credit sales	Number	Per cent of bad debts to credit sales
Less than $5,000	12	12.7	137	8.1
$5,000 to $9,999	11	5.4	190	6.1
$10,000 to $24,999	20	3.4	475	3.1
$25,000 to $49,999	7	1.0	145	1.7
$50,000 to $99,999	6	.8	46	1.0
$100,000 to $249,999	------	----------	16	.4
$250,000 and over	4	.2	4	.3
All stores	60	.5	1,013	1.9

CAUSES OF BUSINESS FAILURE

EXTENT OF FAILURE

The records of the United States District Court show that during the period January 1, 1925, to April 1, 1929 35 retail grocery stores in Philadelphia passed through bankruptcy Further, a study of the records of nine wholesaling establishments showed that, on the average for every retail grocery store which failed and went through bankruptcy there were four others which failed, that is, went out of business with loss to creditors, but did not go through the courts At that rate there would have been 175 retail grocers which would be classified as failures, according to the usual definition, for the period of a little over four years covered in the survey

In addition to the estimated 175 failures of these two types, there were many retail grocers who failed to succeed and went out of business of their own accord or were forced out losing all or part of their own capital but not involving any loss to their creditors Although there are several thousand independant retail grocery stores in Philadelphia, and the mortality rate—that is, the ratio of the number of stores going out of business for all reasons whatever to the total number doing business—was apparently high,[1] all but about 175 went out of business without loss to their creditors, according to our computation

There are no associations or organizations in Philadelphia such as there are in many cities, which settle outside the courts the affairs of grocery-store failures In this city each creditor collects what he can, and, of course, the debtor does not receive a release from his unpaid obligations as he does in brankruptcy or as he sometimes does when there is a more or less formal settlement between him and his creditors acting as a group. Apparently the creditors seldom, if ever, act jointly in effecting settlements in retail grocery failures in Philadelphia.

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[1] Letters were sent to the grocery stores of the city using a 1927 city directory, and 20 per cent of them were returned with notations indicating that the stores addressed were no longer in business

In answer to the question, "What was done in the cases of failure which did not go through bankruptcy?" various creditors replied: "Customers disappeared and no settlement was ever made"; "No settlement was made, the cases were put in the hands of collection agencies, three case of the 35 paid some on their accounts, the others paid nothing"; "The cases of failure were given to our lawyers for collection, the accounts of two-thirds of 40 failures were charged off under profit and loss, one-third of the failures paid some on account after they had secured other positions"; "The cases of failure were put in the hands of our lawyer, nothing was collected on account."

CREDIT LOSSES

A study of the 35 cases which passed through bankruptcy shows that bad-debt losses in extending credit to customers were a major cause of failure of two stores and a contributing cause of three others. The owners of the first two stores realized that their trouble was due to the fact that their money was tied up in grocery accounts which they would never be able to collect. Their losses for 1928 were 10 per cent and 8.5 per cent of their credit sales, respectively. The losses of the three other stores were 7.4, 5.4, and 4 per cent respectively. Our studies so far indicate that the average credit loss of well-conducted grocery stores is less than 0.5 per cent.

The annual sales of these five stores were $10,400, $7,800, $33,800, $16,200, and $31,200, respectively, with an average of 78 per cent on credit—a very much larger proportion of credit sales than the average for small stores. A study of the credit business of 1,077 retail grocery stores in Philadelphia, all going concerns, showed that the stores with annual sales from $5,000 to $9,999 did 34.9 per cent of their total business on credit, those with sales from $10,000 to $24,999 did 35.2 per cent, and those with sales from $25,000 to $49,999 did 41 per cent. Contrasting these percentages with those of the bankrupts who failed on account of loose credit, it is noticed that the bankrupt stores extended twice as much credit proportionally as the other stores of the same size.

The combination of a high credit-loss percentage and a large proportion of credit business is one to be avoided in the retail grocery business. The margins in this business are small and this combination will quickly produce net losses instead of net profits and will lead to failure, as it did in the cases mentioned above.

EASY CREDIT FROM WHOLESALER TO RETAILER

There is a great deal of cooperative wholesaling in Philadelphia; that is, the functions of wholesaling are performed by associations of retailers. These associations extend credit to their members on a weekly basis and penalize overdue accounts. The regular wholesalers also sell on a weekly basis as well as for periods of 30 days. Taking the wholesalers as a group, credit apparently is extended carefully and collections are watched closely. However, there is a proof of leniency on the part of a few wholesalers, jobbers, and manufacturers. Included in this group are wholesalers supplying retailers with meats, fruits and vegetables, butter and eggs, as well as those handling strictly grocery products.

Leniency on the part of some wholesalers, jobbers, and manufacturers is indicated by the number of grocers that fail—that is, go out of business with loss to such creditors—and also by the amount of losses involved.

A study of nine wholesaling establishments of various sizes showed that the average number of failures per establishment among their customers during the last year was 21. The smallest number reported by any one wholesaler was 1 and the largest 50, which was reported in two cases.

While the individual amounts involved are usually small, they are not always so, and the total is quite large when the size of the retail stores is considered. One grocery having annual sales of $26,000 failed, owing $4,047 to 18 different wholesalers, with $1,228 the largest amount owed by anyone. The owner of this business also owed very large amounts to other types of creditors. Another, with annual sales of $18,200, failed owing $4,180 to 45 wholesalers. The largest amount due to any one wholesaler was $446. He also was indebted to other types of creditors. A third, with annual sales of only $7,800, owed $1,428 to 29 such creditors, with $282 the largest item. He likewise owed large amounts to other types of creditors. The 33 bankrupts owed a total of $66,251 to wholesaling and manufacturing establishments. The conclusion would seem to be that some wholesalers and manufacturers are indulgent creditors. These are large amounts when one considers the size of business, the fact that these individuals were at the same time heavily in debt to other classes of creditors, and that at the time of bankruptcy in eight of the cases including the three individual cases mentioned above, there were absolutely no assets to cover even a small portion of this indebtedness.

LOSSES IN REAL-ESTATE INVESTMENT AND REAL-ESTATE SPECULATION

If one were to list the causes of failure among retail grocers of Philadelphia during the period January 1, 1925, to April 1, 1929, in the order of their importance, with the possible exception of unscientific business methods and practices—which are forces hard to measure—the facts would indicate that losses on real-estate investments and speculations should be placed first. Some of these losses were due to unwise purchases, others to a decided real-estate slump which the individuals concerned could hardly have foreseen. Some bought for the purpose of resale at a higher price, and thus were speculating. Others bought for the purpose of renting or for using the building as dwelling and store for themselves. In at least 11 of the cases which passed through bankruptcy, losses in real estate were clearly a major cause. In four of these cases there was nothing wrong with the grocery business, and the real-estate losses were the only cause, but since the grocers were in business as individuals rather than corporations, it was necessary to liquidate the grocery businesses in settling their affairs.

In one case the grocer had bought an apartment house in Atlantic City for a sum in excess of $100,000. It was heavily mortgaged for short-term periods, and the owner went into bankruptcy on account of his inability to renew the first mortgage

In another case the grocer was forced into bankruptcy by his inability to rent heavily mortgaged properties, which made it impossible for him to carry them He could not sell the properties for enough to cover the face value of the mortgage, and, in addition, he was liable on a bond given originally in connection with one of these properties, which he had sold On account of this liability he had to repurchase the property, which had been allowed to depreciate

In the third case a grocer had bought real estate for sums totaling approximately $70,000 when prices were at their peak

In the fourth case a mortgage was called on a building which the grocer had once owned and conveyed, but since he was still liable on a mortgage bond which he was unable to pay he went into bankruptcy to be relieved of his liability

In the cases just mentioned there was nothing wrong with the grocery business, and the real estate concerned was not involved in the conduct of the grocery business

In the remaining cases where real-estate losses were a factor contributing to failure, the real estate was used more or less in connection with the business The amounts owing on mortgages were commonly from $16,000 to $38,000 In one of these cases the grocer borrowed on third and fourth mortgages to secure cash that would enable him to secure a second mortgage In another he had a third mortgage on a property on which he paid 30 per cent interest The owners' equities in some of these transactions were so small that the slightest decline in real-estate values caused trouble

This information concerning losses in real-estate speculation or investment indicates clearly that study of causes of failure should extend over a long period of time Over a period of 25 years such losses probably would have been a minor factor in the failures of these grocers, but during this 4-year period, in which a real-estate slump occurred, real-estate losses were quantitatively the most important cause

FINANCING UNDER UNFAVORABLE CONDITIONS

At the time of their failure, 22 out of the 35 stores studied were financing themselves in part with money borrowed at rates of interest prohibitive for business purposes However, financing under unfavorable terms was not the original cause of the trouble in a single case At the time of entering business these grocers did not finance themselves by such loans The funds for organizing the businesses were supplied mainly by the owners themselves, without borrowing This was the source of 67 8 per cent of the total capital at time of organization

While financing under such very high terms was not the original cause of failure, it was an important contributing cause A business man paying from 18 to 36 per cent for his money obviously would be hard pressed to succeed in competition with one paying 6 per cent. In the grocery business where, as a rule, the profits are small, this difference alone was enough to drive the merchants into bankruptcy, since the amounts involved were large and the period of time over which interest was paid was sometimes quite long According to the court records, one grocer, at the time of his failure owed 10 different companies a total of $4,938, another owed 8 companies a total of $4,732. The total amount owed to loan or finance companies by the 22 stores using them as a source of capital was $43,736. In some cases it was found that the grocer, in his petition, listed the face value of his promissory notes rather than the actual amounts owed which were less than the face value on account of sums repaid. On the other hand, it is probable that because of accumulated interest charges the actual amounts owed in some cases were greater than the face value of the notes.

The conclusion in regard to financing as a causal factor of failures among Philadelphia grocers is that borrowing under prohibitive terms when they were in difficulties from other causes added to the original trouble and thus helped to bring on bankruptcy in 22 cases out of the total 35.

SOURCES OF CAPITAL AT ORGANIZATION OF 30 BANKRUPT RETAIL GROCERY STORES PHILADELPHIA, PA

Source	Stores using source for whole or part of capital	Amount	Per cent of total
From owner without borrowing	27	$59,700	67.8
Borrowed from friends or relatives	6	6,100	7.0
Assistance from wholesalers and jobbers	11	4,475	5.1
Borrowed from loan or finance companies	2	1,300	1.5
Borrowed on life insurance	1	80	.1
Fixtures purchased on installments	14	16,333	18.5
Total	30	87,988	100.00

LIABILITIES OF RETAIL GROCERY STORES AT TIME OF BANKRUPTCY, PHILADELPHIA, PA

[Excluding mortgages on real estate ($417,6[illegible]6) and liabilities incurred by indorsing notes for others ($36,01[illegible])]

Creditor	Number owing each type of creditor	Amount	Per cent of total
Wholesalers, jobbers, and manufacturers	33	$66,251	31.6
Loan or finance companies	22	43,736	20.8
Commercial banks	13	12,441	5.9
Individuals	27	58,164	27.7
Equipment dealers (installment plan)	3	1,785	.9
Morris Plan banks	4	312	.2
Other including preferred debts such as taxes and rent	31	27,256	12.9
Total		209,945	100.0

INEXPERIENCE

Inexperience was, no doubt, a cause of failure in some instances, but out of a total of 26 for which information on previous occupation was obtained, 20 had been previously connected with the grocery business, 7 had been grocery clerks, 11 had been in the business as owners, 1 was a salesman for a wholesale house, and 1 was manager of a grocery business. It is thus evident that a high percentage had an opportunity to learn something about the business before entering it. The occupations of the six who had no previous experience in the grocery business were wool sorter, peanut vender, shoemaker, meat cutter, merchant tailor, and laborer—occupations which hardly prepared these individuals for careers as retail grocers.

The average length of time these persons were in the businesses which failed was 4.2 years. Five of them failed within a year, while three were in business for 17 years or more. The average length of time these individuals were in any kind of business as owner, including the time spent in the businesses which failed, was 9 years.

Since failure, 17 out of the 26 have again become connected with the grocery business, 6 of them are grocery clerks, 5 are in business for themselves, 1 is a buyer, and 5 are managers.

In securing credit information from 1,371 independent retail grocery stores in Philadelphia, all going concerns, information on previous occupation of these merchants was obtained. Out of a total of 1,371 it was found that 167 had been grocery clerks, 184 had been managers or owners of retail grocery stores, 136 had been managers or owners of retail businesses other than grocery stores, and 740 had no previous connection with the grocery trade. The last group had been employed previously as barbers, bakers, butlers, bookkeepers, boilermakers, and others. A total of 144 either reported themselves as having no previous occupation or gave no information on this point.

In view of the fact that more than half of those engaged in the retail grocery trade as owners had no previous experience, it is somewhat surprising that there are not more of them in bankruptcy. The answer in many cases probably lies in the strict credit methods of the wholesalers. The fact that, on the whole, credit is granted carefully and collections watched closely in Philadelphia probably means that many of the inefficient are forced out before they can be classed as failures.

UNSCIENTIFIC BUSINESS METHODS AND PRACTICES

Unscientific business methods and practices are forces which can not be measured easily and set forth in statistical form, but they were important causal factors among Philadelphia grocery failures. Most of these business men kept no records. Many of them never took an inventory. Very few of them ever had given consideration to the relative costs and profits of the various commodities sold. One of them had difficulty in counting and in making change and made many mistakes. Another used poor judgment in signing a long-term lease of a store building at an exorbitant rate. Eleven out of 26 had been owners of grocery stores previously, but apparently did not learn much from experience, 5 of the 26 are now engaged in their third enterprise as owners of grocery stores. In one of the five cases just mentioned all the facts indicated that this factor was the cause of the bankruptcy, and yet this man found sufficient support among the necessary creditors to put him back in business again within a short time after his failure.

COMPETITION

In a number of cases the grocers who had failed said their trouble was due to competition, particularly chain-store competition. One had stores on both sides of him which took most of his business, another said that competition was so keen that even the chain stores were giving credit, the manager doing it at his own risk In some cases the manager made deliveries in his own car In other instances delivery was made by schoolboys whose services were made available by the manager but were paid for by the housewife That competition was keen there is no question, but it is also true that where competition was keenest, some stores, including independents, were doing good business and apparently were prospering

DISHONESTY

In none of the cases included in the present study was there any attempt by creditors to recover any alleged preferences or to reveal any concealed assets In at least one case the bankrupt was found to be in business again across the street from his former location before obtaining his discharge, but the source of his capital was not learned It is possible that dishonesty entered into this case, but there is no evidence to this effect except the fact that the man, presumably almost penniless, had money of his own or had been able to secure credit even before his discharge in bankruptcy In several other cases the bankrupt continued in business almost without interruption at the same stand at which he failed, in some instances he was helped by friends and relatives and no inference should be drawn

COSTS OF ADMINISTRATION OF BANKRUPT GROCERY STORES

A detailed statement of the costs of administering the bankruptcy proceedings of 18 grocery stores is set forth in tables on pages 11 and 12 These 18 cases represent all that were adjudicated and closed within the period January 1, 1925, to March 30, 1929

The facts show that in only one case a dividend was paid to creditors This dividend of 13 09 per cent of liabilities was paid 9 months and 18 days after the petition in bankruptcy was filed

Out of the total of 18 cases, 8 were "no assets" and 10 "asset" cases A no-asset case is one in which no property other than that advanced to indemnify the referee for expenses was subjected to the jurisdiction of the court All the no-asset cases were voluntary bankruptcies, whereas of the 10 asset cases, 6 were voluntary and 4 involuntary

An analysis of costs of administration shows that in the 10 asset cases, attorneys' fees were 43 5 per cent of the total costs, the portion paid to the referees for commissions fees, and expenses was 18 4 per cent; receivers' and trustees' commissions were 7 2 per cent, appraisers' fees, 7 6 per cent; and other expenses, 23 3 per cent

In the no-asset cases, except for an item of $19 in one case, $15 of which was an appraiser's fee, the referees' expenses constituted the total costs The average expenditure in the no-asset cases was $45 58 The highest expenditure for referees expenses in any case was $60 35 and the lowest $32 95 These sums, plus the amounts the bankrupts paid to their attorneys, which amounts in most cases were not recorded in the schedule of assets, were the total costs of going through bankruptcy for the no-asset cases

The average length of time elapsed from the date the petition was filed to the date the discharge was granted in the no-asset cases was 5 months and 29 days. In the asset cases the average interval was 1 year, 2 months, and 14 days

It is interesting to note that in five cases no discharge was requested and consequently the bankrupts in those cases were not absolved of their debts. In those cases, therefore, though the bankrupt surrendered all his assets for liquidation, he still remains liable for his unpaid obligations.

If these 18 cases studied are judged by their liabilities, one could not say they were small stores, as the 8 no-asset cases had scheduled liabilities of $195,338 and the 10 asset cases $91,599, making a total of $286,937, an average indebtedness of $15,940. However, if they are judged by property subjected to the jurisdiction of the court, they were small affairs, indeed, as the total amount disbursed in the proceedings for the 18 stores was $6,385, an average of only $354 per store.

ANALYSIS OF COSTS OF ADMINISTRATION OF 10 BANKRUPT GROCERY STORES, PHILADELPHIA, PA.

[Representing all "asset" cases adjudicated and closed, Jan. 1, 1925, to Mar. 30, 1929]

Item	Total	Per cent	Case No. 1	Case No. 2	Case No. 3	Case No. 4
Final disposition of assets						
Total cost of administration	$3,992	66.3	$323	$124	$481	$410
Bankrupts' exemption	1,015	16.9	300		39	
Prior, secured, or lien creditors	136	2.3			35	
General creditors (per cent of dividend 13.09)	863	14.3				
Other payments	15	.2			15	
Total amount disbursed in the proceedings	6,021	100.0	623	124	570	410
Amount paid to referee						
Fees for filing claims	29	.7		2	3	1
Commissions	29	.7	6	1	6	
Expenses—						
Advertising	68	1.7	7	6	7	7
Office quarters	145	3.7	13	15	10	15
Clerical aid	324	8.2	38	21	18	27
Other expenses	137	3.4		6	12	3
Receiver's commission	188	4.7	35	7	33	24
Trustee's commission	99	2.5				
Appraiser's fees	303	7.6	30	7	45	30
Attorney's fees	1,736	43.5	75		200	175
Other expenses	930	23.3	119	59	148	127
Total cost of administration	3,988	100.0	323	124	482	409
Schedules liabilities	91,596		6,795	3,776	1,693	5,201

Item	Case No. 5	Case No. 8	Case No. 9	Case No. 13	Case No. 14	Case No. 18
Final disposition of assets						
Total cost of administration	$267	$668	$713	$532	$149	$325
Bankrupts' exemption		16	300	130	230	
Prior, secured, or lien creditors	101					
General creditors (per cent of dividend, 13.09)			863			
Total amount disbursed in the proceedings	368	684	1,876	662	379	325
Amount paid to referee						
Fees for filing claims	3	8	4	3	2	3
Commissions	4		9		1	2
Expenses—						
Advertising	7	7	7	7	6	7
Office quarters	15	12	20	15	15	15
Clerical aid	28	48	34	53	18	39
Other expenses	12	41	26	18	8	11
Receiver's commission		36		36		17
Trustee's commission	16		77		6	
Appraisers' fees	27	52	30	30	22	30
Attorneys' fees	75	310	425	325	51	100
Other expenses	81	153	81	44	18	100
Total costs of administration	268	667	713	531	147	324
Scheduled liabilities	2,457	9,864	11,071	23,935	14,548	12,256

Analysis of Costs of Administration of Eight Bankrupt Grocery Stores, Philadelphia, Pa.

[Representing all "no asset" cases adjudicated and closed Jan. 1, 1925, to Mar. 30, 1929]

Item	Total	Per cent	Case No. 10	Case No. 11	Case No. 15
Total amount paid to referee					
Fees for filing claims	$8	2.33	$2	------	$1
Expenses					
Advertising	59	16.32	7	$7	7
Office quarters	55	15.08	12	7	5
Clerical aid	183	50.31	29	31	18
Other expenses	58	15.85	9	2	2
Total cost of administration	363	100.00	59	47	33
Scheduled liabilities	193,335	------	16,744	36,595	4,597

Item	Case No. 16	Case No. 19	Case No. 20	Case No. 21	Case No. 22
Total amount paid to referee					
Fees for filing claims	------	$1	$1	------	$3
Expenses					
Advertising	$7	7	8	$8	8
Office quarters	8	8	5	5	5
Clerical aid	12	18	33	20	22
Other expenses	6	5	3	19	12
Total cost of administration	33	39	50	42	50
Scheduled liabilities	13,305	2,625	34,549	46,564	40,356

Time Required for Administration of 18 Bankrupt Grocery Stores, Philadelphia, Pa.

"Asset" cases

Case No.	Discharge			Case closed			Dividend declared		
	Yr.	*mo.*	*d.*	*Yr.*	*mo.*	*d.*	*Yr.*	*mo.*	*d.*
1	0	7	15	0	11	10			
2	1	6	20	0	11	2			
3				1	3	15			
4[1]	2	5	18	2	10	19			
5				0	8	17			
8	1	0	18	0	7	27			
9				1	5	27	0	9	18
13	1	2	29	1	0	21			
14	0	3	15	0	9	0			
18				0	10	23			
Average	1	2	14	1	1	28	0	9	18

"No asset" cases

Case No.	Discharge			Case closed		
	Yr.	*mo.*	*d.*	*Yr.*	*mo.*	*d.*
10	0	3	9	0	9	3
11	0	9	11	1	4	17
15				0	8	13
16	0	2	29	0	6	16
19	0	5	24	0	8	1
20	0	5	5	0	6	24
21	0	11	14	0	8	0
22	0	5	22	0	6	7
Average	0	5	29	0	8	21

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[1] Referee died during administration of case.

U. S. DEPARTMENT OF COMMERCE
R P. LAMONT, Secretary

BUREAU OF FOREIGN AND DOMESTIC COMMERCE
WILLIAM L COOPER, Director

MARKETS FOR AMERICAN MOTION-PICTURE EQUIPMENT IN ASIA, AFRICA, AND OCEANIA

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FOREWORD

During 1929 the United States exported 4,180 motion-picture projectors of a total value of $805,266. Of that total Asia, Africa, and Oceania took 1,754 machines, with a total value of $249,410. The largest individual market for American projectors in 1929 in that area was Japan, which took 130 standard (33-millimeter) projectors valued at $22,876 and 883 amateur (16-millimeter) projectors valued at $70,268. Australia, with 66 standard machines valued at $29,492 and 166 smaller ones valued at $8,302, was next in importance, and South Africa, taking apparatus valued at $24,607, was third.

This bulletin gives information on the standard projectors in use in each of the countries covered, the use and possibilities of sales of generator sets, the types of lamps and screens in use, and the extent to which visual education by means of motion pictures is practiced.

These data are presented to give American exporters a picture of market conditions in the countries covered by the bulletin. Should further information be desired, the Motion Picture Division of the Bureau of Foreign and Domestic Commerce will be glad to answer specific inquiries from interested American firms and individuals. Lists of possible dealers in American motion-picture equipment can be obtained by qualified exporters from the Commercial Intelligence Division of the bureau.

WILLIAM L. COOPER, *Director,*
Bureau of Foreign and Domestic Commerce.

JUNE, 1930.

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Based on Reports from Oversea Representatives of the Department of Commerce and the Department of State Compiled by N D Golden, Assistant Chief, Motion-Picture Division

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INTRODUCTION

The countries of the East and Africa are developing into important markets for motion-picture equipment of American manufacture The exhibitors of Australia New Zealand, and Japan regard American equipment as the best in quality of performance and construction In the Near East the major part of the projection equipment used is of German and French manufacture This is primarily due to the failure of American equipment to be introduced on any large scale and the high initial cost of our equipment

Sound and talking pictures are being introduced This should open to American manufacturers a large and fertile field of exploitation, since new equipment is invariably installed when a theater prepares to present sound pictures

There are hundreds of theaters in the markets covered whose projectors are old and antiquated Most of them have outlived their usefulness and are ready for replacement with up-to-date equipment. There are also many theaters using but one projector

Since price is the determining factor in the purchase of new equipment, American manufacturers must compete with those of Germany, France, and the few manufacturers of Australia and Japan to gain a foothold in those regions However, the superior quality of American equipment is fast overcoming this price barrier.

AUSTRALIA

From report by Charles F. Baldwin, assistant trade commissioner, Sydney

The great popularity of motion-picture entertainment in Australia and the consequent rapid increase in the number of cinemas have made that country an important market for projecting machines and other motion-picture equipment. Throughout Australia the construction of new theaters is progressing at a rather astonishing rate, and in each new house emphasis is being placed upon modern equipment and advanced ideas of exhibition. In many characteristics the Australian market is similar to the American, and the growing tendency to emulate the American example in theater management increases that resemblance.

Australia's cinema-equipment demands are supplied principally by the United States, Germany, and England, in order of importance, and by domestic manufacturers. Australian manufacturers compete mainly in the trade in accessories and projecting machines. In the latter they have been very successful and are offering strenuous competition to imported projectors.

Three projectors of American make are the most widely used imported machines in Australia. Other foreign machines on the market are the Goertz and the Ernemann, of German manufacture, and the Kalee, made in England. The latter is not highly regarded in Australia, and its sales are small. Some time ago a vigorous attempt to promote sales of the Ernemann machine was made, but the effort was unsuccessful.

Projectors of Australian manufacture are the Cummings and Wilson (C & W) and the Garvey. The latter is not an important competitor, but the C & W machine is selling well and offers the most effective competition to imported projectors. Assisted by a protective import duty, Cummings and Wilson (Ltd.), has developed a machine which is rapidly gaining in popularity, not only because of its Austrian manufacture, but also because its price is lower than that of the imported machines. It is reported that 200 C & W projectors were sold during 1929. Selection of these machines by several large new theaters, including the Regent in Sydney and the Auditorium in Melbourne, is a further commentary on their popularity.

In addition to theatrical machines, the following nonprofessional projectors are sold in Australia: Two American machines, Pathé, and Butcher's Empire. Because of its design, another American projector is often also included in that category. Generally speaking, American amateur machines suffer because of their relatively high price, although vigorous efforts are being made to increase their sales.

The American standard projectors retail in Australia from $950 to $1,090 and a semiportable projector sells from $290 to $415. The Cummings & Wilson machine sells for approximately $875 and the Garvey for $485. The Goertz sells from £175 to £195, the Ernemann from £185 to £215, and the Kalee from $850 to $950.

Among the so-called nonprofessional projectors, one American make sells for $440, the Pathé for $220, Butcher's Empire for $290, and another American make for $315.

In spite of their relatively high price, American projecting machines are popular in this market because of their advance design and improvements Because of these refinements, they are regarded throughout Australia as the highest grade projectors sold in the country The popularity of the domestic C & W machine is attributable not to new improvements, but rather to sentiment and lower price The machines are not equipped with such devices as speed indicators and loop setters which appeal to exhibitors In some cases the inclosed feature of an American machine is preferred, while other exhibitors favor the open machine of another American make; sentiment in that regard is about divided

In general, the two above-mentioned American projectors embody all the features which appeal to the Australian buyer, an advantage, however, which is offset by a price which often acts as a sales obstacle

Projection equipment—Virtually all large urban and most large suburban houses in Australia operate two or more projecting machines The motion-picture industry is conducted on so extensive a scale, and audiences are so accustomed to efficient exhibition, that interruptions caused by failure of one projector could not be permitted It must be remembered that the Australian motion-picture world is dominated by the American influence, and houses are operated after American methods In all representative theaters, and except in the smallest communities, the use of more than one projector is customary In most of the larger houses three machines are used

Because of the absence of definite information, it is difficult to say whether or not the majority of projectors in use in Australia are old or new models The recent opening of several large theaters in Australia has naturally resulted in the installation of new machines, it is also known that most of the older leading houses operate modern machines Where older machines are in use, they are made as modern as possible by the addition of new devices or by remodeling The manager of a large Sydney firm which represents one of the leading American projectors says that the remodeling of old machines has developed into a service of considerable importance In general, therefore, it may be said that either new or improved machines are in operation in practically all leading Australian theaters, and that obsolete machines are in use only in the smallest city houses or in some of the more remote small towns

Generators—There is a good field for the sale of American generator sets in Australia One large American company is well established in the market and does a considerable business in sets ranging in price from $390 to $475 Another American set sells complete with switchboard and all accessories for $1,580 The principal competition to American generators is offered by the Compton set, of British manufacture, which ranges in price from $390 to $485 There is no domestic competition of importance, and the prospects for increased sales of American equipment are believed to be good

Arc lamps—High-intensity and mirror-reflector arc lamps are in wide use, but they are being superseded to some extent by incandescent lamps, although comparatively few of the latter are yet in operation because of their shorter range The mirror arc is used in most of the larger houses while the incandescent lamp is becoming increasingly popular for smaller theaters

Screens.—Practically all screens used in Australia are of domestic manufacture Attempts have been made to sell imported screens, but their higher price has militated against their sale Domestic producers, assisted by a protective tariff, dominate the market, and the domestic screens have proved satisfactory There seems to be little hope under existing conditions, of stimulating a demand for foreign-made screens

Visual education.—Visual education is in a relatively early stage of development in Australia, but a promising start has been made Several large colleges have purchased projecting machines, and efforts are being made by Harrington's (Ltd), a large Sydney company, to stimulate interest among other educational institutions The great popularity of motion pictures as entertainment in Australia induces the belief that the country should eventually devote more attention to education by means of the film

At present, however, stills are more widely used than motion pictures for visual education, largely because of the lack of suitable educational pictures Motion-picture production of any kind has not been particularly successful in Australia, and aside from the "Know Australia" series of films, sponsored by the Asutralian branch of a large American film organization, little has been done in the direction of filming educational pictures It is believed, however, that a demand for these films could be stimulated, and American producers of scientific, technical, or other instructive pictures would do well to keep in touch with developments While the demand at first would probably be small, a carefully planned campaign of propaganda might stimulate more widespread interest.

Government departments which have under their supervision matters pertaining to education are Education Department, Bridge Street Sydney, New South Wales; Education Department, Treasury Gardens Melbourne, Victoria, Education Department, Flinders Street, Adelaide, South Australia, Public Instruction Department, Brisbane, Queensland, Education Department, St. George's Terrace, Perth, Western Australia; and Education Department, Public Buildings, Murray Street, Hobart, Tasmania

Portable projectors.—There is a fairly large field for portable motion-picture projectors in Australia, and the market is considered to be open for the introduction of makes which have not yet been sold there

No portable projectors are made in Australia, but German competition is keen The main German make on the market is the Goertz. Some English machines are imported, but their competition is not considered serious. The machines having the largest sales are of American manufacture

American projectors are well liked. There is, however, as in the case of the tariff generally a preferential tariff rate applying to projectors manufactured in the United Kingdom.

The most satisfactory way for an American exporter to sell in Australia is generally through appointing a resident agent German competition is so keen that it is very difficult to sell to most importers direct by correspondence unless the product is already well known.

The oversea manufacturer of portable motion-picture projectors grants a maximum of 50 per cent discount to his distributor. The latter grants not more than 33⅓ per cent discount to dealers

Terms of credit are conventional and differ widely It is understood that some manufacturers grant terms of 30 days after sight and that others require cash against documents The terms depend upon the standing of the local importer, how well he is known to the exporter, etc Many importers of American commodities in general in Australia pay by establishing a letter of credit in the United States

The purchaser of a portable motion-picture projector generally receives terms of 30 days.

BRISBANE

From report by R L Rankin, American consul

Projectors—There are 268 motion-picture theaters in the State of Queensland About 75 per cent of them use projectors of American manufacture, 15 per cent are Kalee (British), and the remainder miscellaneous German makes

The American projectors sell for about $975 and the German and English at $825 It should be noted, however, that in order to bring the American machines down to this price, German lamp houses and Australian stands or bases are used The German lamp houses are reported as cheaper and are considered by certain individuals to be better in both appearance and operation, than the American Bases and other minor parts of Australian manufacture are used solely on account of their cheapness, which results from the lack of transportation charges and the customs duty

American projectors are preferred mainly because of the interchangeability of parts They also have an excellent record for standing wear throughout a long period of years

The equipment in theaters in Queensland varies widely. Most of them however, have two projectors Models of all ages are found, from the latest to some at least 15 years old. The old American projectors are giving better service than those of other nationalities, and the new American machines are preferred

Arc lamps and generators—Mirror-reflector arc lamps are used in about 70 per cent of the Queensland theaters, while the high-intensity type is not in use at all There is no demand for American generator sets, the complaint being that they are not adaptable for the mirror arcs; this can hardly be true, however, inasmuch as they are being used with mirror arcs in the United States A German machine, manufactured by Max Levy, is the most popular

Screens—There is little uniformity in the type of picture screens in use Most of them, however, are sheeting of comparatively cheap quality

Visual education—The Department of Public Instruction supervises matters pertaining to education, but has not adopted motion pictures to any considerable degree The cost of such an undertaking in a State of so great area as Queensland is likely to prevent the Government from taking action along that line Definite attempts are being undertaken by private firms to introduce motion pictures on an educational basis, but no plan has been developed as yet which would be on a paying basis. It is hoped, however, to work out a system comparable to that which exists in New South Wales

ADELAIDE

From report by Leo J Callanan, vice consul in charge

Projectors—Metropolitan Adelaide has about 16 motion-picture theaters, of which it is estimated 60 per cent use American projectors, 30 per cent Australian projectors, and 10 per cent other projectors

One American machine has been most favored and most widely used because of its workmanship, simplicity, and long life, but the C & W Australian machine is gaining in popularity and is much cheaper Australian Films (Ltd), 33 Grenfell Street, Adelaide, is the agent for that American machine and the German Hahn-Goerz, and Harrington's (Ltd), 10 Roundle Street, Adelaide, is the agent for the other American machines and Kalee projectors There is no other firm of importance in Adelaide handling motion-picture equipment

Most of the equipment in use in modern The majority of the Adelaide theaters are equipped with two projectors, while a few have three. American projectors are considered superior to all others

Generators—It is estimated that 75 per cent of the generator sets in use are British They have given good service and are strongly established The chief obstacles American generator sets have to overcome are the tariff preference accorded to British equipment and buyer preferences for British goods There is not, however, prejudice against American equipment

Arc lamps—Mirror-reflector arc lamps are generally used, those of German manufacture being favored Hoyts new Regent Theater has the only high-intesity arcs in Adelaide

Screens—Specialized motion-picture screens are not used Ordinary canvas screens are made to suit particular requirements

Visual education—The schools of South Australia have not made any regular use of visual education

NEW ZEALAND

From report by Julian B Foster, American trade commissioner, Wellington

There are four different makes of American projectors in use in New Zealand, besides the Ernemann (German), Kinex and Kalee Indomitable (British), and Pathé and Gaumont (French) It is estimated that 60 per cent of the projectors used are brought in from the United States, 30 per cent from Germany, and the balance divided between the French and the British

Prices of these projectors range from £175 to £230 ($850 to $1,120) according to the equipment attached There is no wide variation in the prices of the machines

There are no special features that make the American machines appeal to the theater owners in New Zealand It is felt, however, that American machines are in far greater demand because the

United States supplies by far the greatest portion of the films Undoubtedly good salesmanship accounts for our heavy sales to a certain extent The Australian Films (Ltd), Wellington, handles practically all makes with the exception of Ernemann and one American make These are handled by Ernemann Supplies (Ltd) and Harrington's (Ltd) These three firms are the chief importers of projectors in New Zealand During the past three years by far the greater portion of machines installed have been American, and according to the reports they are giving excellent service

The three firms above mentioned are practically the only ones in New Zealand who could do justice to the lines in question They have the confidence of the theater owners, and it is a very difficult matter for other dealers to make sales as the interests of the theater owners are closely allied with the concerns named Another small concern handling that type of equipment in a small way is Waterworths (Ltd)

All of the larger theaters are equipped with two machines, and the smaller ones are gradually installing two Owing to the small size of the projection rooms, it is felt that a good machine with two heads on one stand would find a ready sale in the smaller theaters which are too small to take two separate machines Most of the machines in the larger theaters are recent models, during the past two years over 200 American machines of one make have been installed While there are many old types still used in the smaller theaters, the general trend seems to be to install up-to-date operating appliances The American projectors in use at the present time are said to be giving much better service than the other models

Generators—The possibilities for the sale of American generator sets for use in motion-picture theaters to convert alternating current to direct current seems to be exceedingly good at the present time, owing to the number of hydroelectric plants throughout the country providing power for exhibitors

Arc lamps and screens—High-intensity and mirror-reflectors arc lamps are used in motion-picture theaters in New Zealand and are constantly in demand. The screens used are mostly canvas and plaster

Visual education—Visual education has been used very little in New Zealand Several attempts have been made to secure the attendance of school children at the theaters in the afternoon, but the lack of suitable and sufficient films has been a handicap It is said that the education department has now refused to allow children to be taken away from school to attend educational pictures, but that the matter of visual training by educational pictures meets with the approval of that department, and machines will probably be installed in the larger schools in the not far distant future If a regular and good supply of educational subjects was assured, together with a suitable type of portable machine, it is believed that the department would begin to feature that means of education

The only Government representatives that have under their supervision matters pertaining to education are the education department and education boards The latter are local boards controlling educational matters in their different districts

FIJI ISLANDS

From report by Quincy F Roberts, American consul, Suva

There are six motion-picture theaters in the colony of Fiji, with an estimated total seating capacity of approximately 2,000

Projectors—There are two American machines, two English machines, and two German machines in use The newest machine in Fiji is the English Kalee installed in the Universal Theater at Suva

The Suva theaters are equipped with two projectors, a new machine in use and an old projector kept for emergency use

There appear to be no special features that appeal to theater owners in Fiji, and there is no evidence that American projectors are giving any better service than other makes Owners of British and American machines feel that their equipment is giving satisfaction

The market for projectors is so small that dealers and merchants of Suva are not interested in handling them The theater owners deal direct with agents in Australia, New Zealand, and England

Current—The power supplied at Suva is direct current at a voltage of 240 It is understood that power at other places is also direct current

Arc lamps and screens—Mirror-reflector arc lamps are used in both the Suva theaters Ordinary canvas screens of local manufacture are used in Fiji

Visual education—The Director of Education has charge of education in the colony of Fiji Visual education has made no progress in the colony the great problem being to obtain funds for schools and teachers

SOCIETY ISLANDS

From report by Lewis V Boyle American consul, Tahiti

Projectors—There are five motion-picture theaters in the French Establishments of Oceania, and the combined seating capacity of all the theaters is 2,000 All of the theaters are using American motion-picture projectors, models 1923 and 1925 All the theaters are equipped with only one projector except the theater in Papeete, which has two projectors

Generators—There is no opportunity for the sale of American generator sets for use in motion-picture theaters in converting alternating current to direct current, as there is no electric current available in the colony except in the city of Papeete The four theaters outside that city use individual power plants The theater in Papeete is about to be equipped with generator sets purchased in the United States

Arc lamps—There are no high-intensity and mirror-reflector arc lamps used in the theaters in the colony at the present time, although the theater in Papeete is about to be equipped with such appliances It is believed that the theaters outside of the city are too small to purchase such equipment.

Screens—The motion-picture screens in use in all the theaters are made of white cloth painted with water paint

Visual education—Visual education is not used in any of the schools of the colony There is little possibility for the sale of equipment to the educational institutions of French Oceania, as those institutions do not have funds available for that purpose. The colony is unable to provide for its schools anything other than meager facilities and equipment

PHILIPPINE ISLANDS

From report by G C Howard, American trade commissioner, Manila

An American projector and the Pathé are the two types in use in the Philippines The American machine sells to users from $600 to $1.200, according to equipment, and the Pathé from $500 to $700

The Pathé is the largest seller, by reason of its cheapness, the average theater in the islands being small and unable to afford any but the lowest-priced equipment The American projector sells to the largest theaters in the Provinces only and to the Manila houses It is felt that the Pathé would sell to the Manila theaters also if it were a totally inclosed model, but the fire laws of Manila do not allow the use of open types, and for that reason the American machine is used exclusively in Manila The Pathé machine is said to be simpler to operate, and therefore better suited to the needs of theaters having only mediocre operators

Only the larger theaters in Manila have more than one projector, those in the Province using but one

Except for the five large Manila houses—Lyric, Ideal, Majestic, Savoy, and Palace—which use the latest models, projectors are practically all old types

American and French projectors are both giving good service, and no preference can be found on this score

Generators—Practically all electric service in the islands, with the exception of Manila, is direct current In Manila some five or six houses are using generators but practically all use transformers

Arc lamps and screens—No high-intensity arc lamps are sold in the Philippines, the mirror-reflector type only being used

Homemade screens are universally used One silver screen was installed in a Manila theater some time ago, but complaints about the reflection and glare were so numerous that it was painted over

Visual education—All matters pertaining to education are under the control of the Department of Public Instruction, Ayutamiento, Intramuros, Manila No attempts to utilize the motion picture as an educational medium have been made in the Philippine Islands

NETHERLAND EAST INDIES

From report by Don C Bliss, American trade commissioner, Batavia, Java

There are only three makes of motion-picture projectors in use in the Netherland East Indies, the most popular are the Ernemann projectors It is said that the increasing popularity of those machines is largely due to the excellent service given by its agent Next in popularity are the Pathé projectors There are some American machines in use, but they are all old models, and the make is not sold in the territory at the present time.

Selling prices of the leading types of projectors are as follows:

Krupp-Ernemann	
Doppel-Imperator I	$1,280
Imperator II model 3375	880
Imperator I model 3083	560
Imperator I model 3139	680
Hahn Goerz	622
President, model No. 3098	360
President, model No. 3409	480
Pathé	
Projector type A. B. R.	150
Professional projector type A. B. R.	560
Small projector, type N. A. F.	336

Simplicity of construction and operation is the principal selling point in marketing motion-picture projectors, in view of the fact that native operators are used exclusively in motion-picture theaters throughout the Netherland East Indies. The operators are not skilled mechanics, can be taught only with difficulty to handle complicated mechanisms, and are not obliged to undergo any examination or test or to go through any course of training.

Most of the theaters are not equipped with more than 1 projector, and it is estimated that no more than 12 theaters have 2 projectors. These are all to be found in the larger cities, such as Batavia, Soerabaya, Semarang, and Bandoeng.

By far the majority of the theaters are using old-model apparatus, although a considerable number of new models were installed during 1927 and 1928. In general, it may be said that there is a fairly constant demand for a small number of new projectors each year.

American projectors are considered too complicated and their operation too involved for satisfactory use by native operators. This factor outweighs any other considerations, such as the possibility of securing superior results by the use of better equipment.

Generators.—It would be almost impossible to sell American generator sets for use in motion-picture theaters to convert alternating current to direct current, in view of the fact that equipment from Germany and France is well established in the market, has been demonstrated to be satisfactory, and is sold at prices considerably below those which American manufacturers can quote.

Arc lamps and screens.—A number of high-intensity and mirror-reflector arc lamps are used in motion-picture theaters, but only in the larger towns, and almost exclusively in connection with Ernemann projectors. Screens are, for the most part, of local manufacture, and consist of a simple cloth screen stretched on a frame.

Visual education.—The Department of Education has under its supervision matters pertaining to education. Purchases by the Department of Education are made either in the local market through the central purchasing department or in the Netherlands through a similar purchasing organization. Bids submitted to either of the Government purchasing institutions can be entered only through local agencies representing foreign manufacturers.

Practically no attempt has been made to develop organized visual education in the Netherland East Indies, although a few films, such as a picturization of the Olympic Games at Bandoeng, have been screened by the Department of Education Although films of an educational nature have not as yet been introduced, special provision has been made in the censorship laws for such films, and it is possible that representations made to the Department of Education would receive favorable attention Before American films could be marketed, some provision would have to be made to overcome the language difficulty, and all titles would have to be made in Dutch, at least, preferably in Dutch and Malay, if the films were to receive wide distribution in the schools

BRITISH MALAYA

From report by Donald W Smith, assistant trade commissioner, Singapore

The possibilities for the sale of motion-picture projectors and equipment in British Malaya are small and limited

Projectors—Although there are a number of different projectors to be found on the market, the scarcity of theaters in the territory necessarily restricts the sales of such machines to about a dozen a year The Pathé projector is the most popular machine in the territory because of its simplicity of operation and its low price. As the local representative of the Pathé projector is also the distributor for films, his machines are readily sold through his close contact with operators of cinemas

An American machine is probably the next most popular projector. Its high price and complicated mechanism, however, tend to retard its sales

German machines also find favor in the territory, the Bauer and the Hahn Goertz projectors both being popular, the former on account of its price and the latter because of certain distinctive mechanical features There are several other makes of projectors for sale on the market, such as Aubert, New Austral, Indomitable, and another American machine, but the total sales of these projectors are so small that they can not be considered as important

The local retail prices of the leading makes are as follows Pathé, $450, American make, $850; Bauer, $450, Hahn Geortz, $550

Owing to the fact that the majority of the theaters in Malaya cater to native or Chinese audiences, the theater owners in selecting a projector are governed mainly by price, on the other hand, as all of the operators are usually Malay natives, simplicity of construction and operation are also essential selling points

There are no firms handling projectors and equipment exclusively in the territory Such goods are sold through the local film distributors

In British Malaya there are only about six theaters equipped with more than one projector, these being the two leading theaters in Singapore, Kuala Lumpur, and Penang It is doubtful whether the smaller theaters will ever find it necessary to be equipped with more than one machine

Most of the projectors now in use in this territory are old models Even the first-run houses are using old equipment; one of the leading theaters in Singapore, for example, is using a machine over 6 years old. Secondhand projectors find a ready market among the small native theaters.

The American projectors in operation are giving complete satisfaction. A local film distributor, however, who stocks spare parts for almost every machine, states that, according to his experience, the American machines are giving no better service than the other makes.

Generators.—The sale possibilities of American generator sets are small, owing to the fact that in the smaller towns the theater owners would have to install their own engines to operate the generators. The larger theaters in Singapore, Penang, and Kuala Lampur are already using generator sets and apparently are not inclined to make a change.

Arc lamps and screens.—High-intensity arcs are not used, but mirror arcs of low amperage are used by most of the houses. The screens in use are very crude and are locally made. It is extremely difficult to induce exhibitors to purchase a screen costing more than $50.

Visual education.—The Government has made no attempt to introduce visual education in the schools. In any case, owing to the strong pro-British influence, it is not likely that American films would be allowed to be exhibited in local schools.

JAPAN

From reports by Paul P. Steintorf, American trade commissioner, and Graham H. Kemper and Leonard N. Green, American consuls

The motion-picture industry in Japan is a comparatively new development, most of the producing companies having been established within the past five or six years. At the present time there are 4 larger companies and about 12 smaller ones. However, even the largest is quite small judged by American standards. Their production methods are not highly developed and their financial resources are relatively small. In consequence, laboratory and other equipment is comparatively simple.

Standard projectors.—Below is a list of the standard 35-millimeter motion-picture projectors now being sold in Japan:

American make	$1,150	Royal (Japanese)	$650
A. G. (German)	900	Aurban (Japanese)	300
Pathe Simplex (French)	800	Waik (Japanese)	150
Power (German)	1,000		

Of the above, the Japanese Royal projector is the most popular at present, since it is of satisfactory quality and the price is very much lower than that of imported machines. Furthermore, the manufacturers supply unlimited service and parts and accessories are readily obtainable. The better-class theaters in the principal cities are now using either the German or the American projectors. Both machines are of excellent quality and are very popular, the only difficulty being that they are compartively expensive and for that reason are beyond the means of the smaller theaters. The only other machines sold in any appreciable quantities are the Pathé and the Japanese Aurban.

Price is the deciding factor in practically all sales of motion-picture projectors in Japan. This accounts for the popularity of the Japanese Royal machine Since price is the deciding consideration there are no particular features which would lead to increased sales of American projectors

Practically every motion-picture theater in Japan is equipped with two projectors In a few cases they have as many as three projectors. However, the great majority of the projectors now in use in the theaters are old and more or less out of date Many of the new theaters which are being built from time to time are equipped with projectors of the latest type, but most of the older theaters are not particularly prosperous and are not, therefore, in a position to replace their present antiquated equipment

Most theater operators appreciate the superior quality of American projectors and freely admit that they are very much better than the Japanese machines However, there seems to be a more or less widespread opinion that the German machines are more durable and trouble-proof than the American projectors now in use

Generators—Japanese theaters generally use alternating current, although most of them are aware that direct current is much better A few of the largest theaters in the principal cities are now using alternating current and are equipped with American converting generator sets There is a very promising outlet for American generator sets, provided they can be sold at a reasonable price. Theater owners would very much prefer to use direct current, but feel that they can not afford the high price which is now demanded for generators Generator sets are not being manufactured in Japan at present, although the Japanese electric industry is equipped to turn out such sets if the market becomes sufficiently large to make such manufacture profitable If there is any American generator which can be sold at a low price, it is probable that sales in the Japanese market could be markedly increased

Electric current of 100 volts is standard throughout Japan The alternating current of 60 cycles is generally used throughout the country with the exception of the Tokyo-Yokohama district, in which the current of 50 cycles is supplied

Arc lamps—Practically all of the more important theaters are now using high-intensity and mirror-reflector arc lamps

Screens—The majority of the motion-picture screens now in use in Japan are of white cotton cloth, which is manufactured locally especially for that purpose Many theaters are also using a plain white plastered wall as a screen There is also some use of a type of screen called daylight screen, apparently some fabric with a silvered surface

Visual education—Practically no progress has been made in introducing visual education by means of motion pictures into Japanese educational institutions However, the various boards of education and school authorities realize fully the advantage of motion pictures for educational work. In the city of Tokyo the municipal board of education has introduced a plan, in collaboration with the theater owners, whereby twice a month special exhibits are held for school children These shows are usually held on the second and fourth Sunday and start about 10 o'clock in the morning and run for two hours The films shown are ones which have been specially selected as' educational The plan has proven very popular with the school children However, there is very strong opposition to this plan by the Christian community on the grounds that it prevents the children from attending Sunday school The Department of Education is now formulating a national plan for the use of motion pictures in Japanese schools and colleges

Education in Japan is under the control of the Department of Education That department collaborates with and supervises the various educational institutions In addition, each of the Prefectures, which correspond to our States, has a local board of education and all of the larger towns and cities have municipal boards of education All of these local boards are more or less under the direction and control of the central department

Laboratory equipment —There is a very fair market for motion-picture laboratory and other equipment That market will undoubtedly increase as the Japanese studios develop and become more thoroughly acquainted with modern production methods However, the market will always be confined to the more complex and elaborate machinery since all of the simpler equipment can be manufactured locally at very low prices It is believed that there is an outlet in Japan for a considerable number of polishing machines, although, of course, it will be rather severely limited by the small purchasing power of most of the studios It is safe to say that at present there is no market for automatic developing machines, although it is possible that sales could be made by sending an American representative to demonstrate the advantages and superiority of such equipment. However, the present developing methods are satisfactory and undoubtedly considerably cheaper, owing to the low price of labor

Automatic printing machines are being used in most of the larger studios Machines which will print from 35-millimeter positives to the 16-millimeter amateur size have a potential market, since amateur cinematography is becoming very popular, undoubtedly a number of the Japanese productions will eventually be printed for amateur projection purposes

There does not seem to be an appreciable market for perforating machines Very little imported steel equipment of any sort is used, and it is probable that the market for such material will always be very small The developing tanks, racks, and similar equipment are all manufactured locally at very low prices, and, in consequence, there is no market for similar American products

Below are the names and addresses of the leading studios: Shochiku Kinema K K, Shintomicho, Kyobashiku, Tokyo; Nippin Kinema K K, Eirakucho, Kojimachiku, Tokyo, Toa Kinema K K, 1 Munekore cho Kitaku, Osaka, and Teikoku Kinema Eigwa K K, 43 Shiomachidori 4 chome, Minamiku, Tokyo The following are smaller companies and individual producers Makino Kinema Co, Shimo Kamo, Kyoto, Ichritsu Shokai, Sonezakicho, Kitaku, Osaka, Asahi Kinema Co, 47 Kotobukicho, Asakusaku, Tokyo, Azuma Studio, 1000 Azumachi Kosmurai, Tokyo-fu; Chiyoda Eigwasha, 5 Kitchiracho, Shibaku, Tokyo; Kata Eigwa Sesakusho, 951 Tenoju Sumiyoshi, Osaka, Daido Eigwasha, 92 Sannomiya 3 chome, Kobe, and Sanryu Shokai, Kyoto. The first four companies comprise a syndicate.

Portable and amateur equipment—Amateur motion-picture cameras have been on the Japanese market in quantities for only two or three years, and consequently there has not been sufficient time to secure a wide distribution, even within the natural limitations imposed by the economic character of the market On the other hand, the demand for such cameras, and with them projectors, has been found to be good, and the trend of business volume is upward The general opinion prevailing in the trade is that the prospects for the sale of amateur motion-picture equipment are encouraging The low average purchasing power of the people, however, will for some time confine purchases to the wealthier classes, and the more enthusiastic patrons of motion pictures The Japanese are distinctly fond of photography of all kinds, and throughout the entire country cameras of all kinds are widely used As a result, there are, of course, many shops or stores handling them The matter of price and cost of operation are the only obstacles to a fairly large volume of business in cameras and projectors

CHOSEN

From report by C H Stephan, American vice consul Seoul

Standard projectors—Japanese hand-operated projectors are used practically exclusively by theaters in Chosen, the most prominent machine being the Urban The local price of the Urban projector, complete with all necessary appurtenances, is 290 yen ($145) The Wark, another Japanese projector similar to the Urban is sold for 280 yen ($140) One-sixteenth horsepower motors for use with either of these projectors are sold for 100 yen ($50)

One of the leading Japanese theaters in Seoul uses a Japanese automatically operated Royal projector The local price of this machine is 1,250 yen ($625), and payment is being made in monthly installments

Two American-made automatically operated portable projectors are used practically exclusively by the Government General The local price of either of these projectors is 950 yen ($475) Other American-made projectors are used by educational and private business organizations, prices of which are understood to be about the same as the other two makes

All of the theaters are equipped with two projectors to permit of continuous exhibition

Generators—While it is recognized by the theaters that clearer projection may be obtained from direct current, all of them are using alternating current

Principally because of the lack of capital, it is not likely that large sales, if any, of American generator sets for converting alternating current to direct current could be made

Arc lamps and screens—Motion-picture theaters in Chosen do not use high-intensity and mirror-reflector arc lamps Most of them are equipped with 1,000-watt lamps, while some of them have arc lamps with reflectors The Gaumont arc is used almost exclusively There are no new types

The screens used are also practically all made in Japan of damask cotton cloth or canvas coated with silver paint, and sell for 30 to 50 yen ($15 to $25), depending on the size.

Visual education.—Education in Chosen is controlled by the Educational Bureau of the Government General at Seoul. In each provincial government there is an educational section which has control of the education within its Province. Motion pictures, however, are produced and exhibited by special and separate groups of officials of the Government General and of the provincial governments. In the Government General a Social Affairs Section has charge of takeing and exhibiting motion pictures in cooperation with the educational and various other bureaus. Most of the equipment used is purchased locally or through larger dealers in Japan.

No regular plan or system of visual education has as yet been introduced in the educational institutions in Chosen. The motion-picture activities of the Government General and of the provincial governments are, for the present, devoted principally to such subjects as improved methods of agriculture, sericulture, fishing, afforestation, living and social conditions, sanitation, and general publicity, news, and propaganda.

In this connection it may be added that the Government General is interested in receiving and exchanging films of an educational character, especially those which have to do with such subjects as above indicated.

CHINA

SHANGHAI

From reports by Jerome Marcs, clerk to American trade commissioner

Projectors.—The motion-picture projectors in general use throughout China are 2 American makes, Pathé (French), and Zeiss Ikon, Nitzsche, and Ertel (German). Prices vary in accordance with the model but costs to theater owners in Shanghai are approximately as follows:

STANDARD MACHINES

American	$450–$1,050
French	
90 ampere Aubert double post, twin projectors	562
90 ampere Pathe C. M. outfit	382
45 ampere Pathé, A. B. R. outfit	281
90 ampere Pathe A. B. R. outfit	306
30-volt, 30-ampere, Pathe incandescent outfit	281
110-volt, 10 ampere Pathé incandescent outfit	281

PORTABLE PROJECTORS

Pathe self-generating outfit, with hand generator, type NAE	229
Pathe University, No. 1	225
Pathé University No. 2	229
Pathé University, No. 3	216
Pathe University, No. 4	220
Eureka outfit, No. 1, 110 volts	140
Eureka outfit, No. 2, with hand generator	225
Zeiss Ikon	611
Nitzsche	470–1,175

The superior quality of American projectors appeals to the theater owner, but, on the other hand, this is offset by the somewhat cheaper prices prevailing for European machines, with quite satisfactory performance

Theaters located in the larger cities in China, such as Shanghai, Hankow, Tiensin, Peiping, and Hong Kong, generally use two projectors, while those in the interior and in smaller ports use only one First and second run theaters have fairly new models, smaller houses being equipped with rather old machines

Generators, arc lamps, and screens—Possibilities for the sale of American generator sets are good, but somewhat limited Prices must be exceedingly low to compete with German, Swedish, Belgium, and other European makes High-intensity arcs are not used, while mirror-reflector arc lamps are being introduced at the present time Screens are produced locally and are a white or silvered surface on cloth

Visual education—It will be readily appreciated that the financial and political condition of China during the past years and at the present time has been such that scant attention has been paid to education, in consequence, motion pictures have rarely been used in the educational field Supervision of education under the present Nationalist Government is in the hands of the Ministry of Education in the Central Government and comes under the control of the Commissioners of Education in the various Provinces, under whose jurisdiction the purchase of equipment would come The heads of missionary organizations in the United States may also be approached, since their educational institutions in China are the most advanced the country affords

HONG KONG

Based on report by John J Muccio, American consul

Projectors—Two American makes and the French Pathé are the three makes of projectors used in the 13 motion-picture theaters of Hong Kong, having a total seating capacity of 8,350 Four of the largest and more modern theaters use an American machine, eight of the smaller theaters use the Pathé, and only one uses the other American make The Hong Kong Amusements (Ltd) has recently ordered several new projectors of another American make, to be installed in some of its larger theaters

The Hong Kong selling prices for the different makes are as follows

One American make	
Old or rebuilt model	$400
New model	550
Other American make	1,000
Pathé, 45-ampere	250
Pathé, 90-ampere	300

An inclosed type of American machine is generally held in high favor in Hong Kong, although on account of its higher cost it is not used in the smaller theaters The smaller theaters prefer the Pathé, as it is more adaptable for use with scratched, broken, or worn-out films

Dealers—There is only one firm in Hong Kong handling both theatrical and nontheatrical types of motion-picture equipment. This is a branch office of the Pathé-Orient The Hong Kong Amusements (Ltd) has been importing projectors and equipment for use in its own theaters and for sale to motion-picture houses throughout South China

American theatrical equipment is not carried in stock in Hong Kong The nearest stocks are at Shanghai and Manila A branch of an American manufacturer has recently commenced to sell nontheatrical equipment and has undertaken a rather extensive advertising campaign in Hong Kong

The Hong Kong Amusements (Ltd) is already active in the distribution of theatrical motion-picture projectors and equipment throughout South China and at present is the only independent firm importing those articles It is not known to have the agency of any manufacturer, but purchases direct from manufacturers, generally in the United States It is also the principal distributor of motion-picture films in Hong Kong and South China and has the distribution of the products of several American companies It not only owns and manages a large number of the theaters in Hong Kong, but also owns and manages a number of them in Canton and one in Macao The firm is also interested in the distribution of films in Shanghai and in the management of several theaters there

Hong Kong is the distributing center for imports into South China generally Practically all importers have branches or agents throughout the area, and agency agreements are usually made with Hong Kong firms for the entire territory As many of the motion-picture houses throughout South China are owned or controlled by Hong Kong interests or are allied with Hong Kong firms through film-distributing agreements, any dealer in Hong Kong appointed as agent would undoubtedly expect to have the exclusive agency rights for the whole of South China

Equipment used—Most of the theaters in Hong Kong are equipped with two projectors, the Queen's Theater is the only one equipped with three The majority are using old-model projectors The Hong Kong Amusements (Ltd) is in process of replacing some of its equipment with late-model American projectors Four of the larger and more modern theaters are using what are supposed to be rather new models of another American make It is understood that the American projectors are giving very satisfactory service

Generators—There appears to be little opportunity for the sale of American generator sets for converting alternating current to direct current. No transverters nor converters are used The electric current supplied in Hong Kong is alternating, single phase, 50 cycle, 200 volts for lighting, fans, smaller appliances, and for motors of less than 1 British horsepower For larger motors and appliances the current is 350 volts, 50 cycles As most of the theatrical motion-picture projectors in Hong Kong call for 40 volts the current available is worked into a motor which, in turn, operates a generator supplying the required voltage direct to the projector This system is used in reducing the voltage, as it is less complicated than using converters, and, therefore, it is less difficult to train Chinese mechanics to keep it in repair. Practically all of the motor-generator sets are of American manufacture.

Arc lamps.—Mirror-reflector arc lamps are used in the Hong Kong motion-picture theaters, but none is of high intensity. This is due to the relative higher cost of high-intensity lamps on account of the greater consumption of electricity. Whereas the cost of electric current is now estimated at $2.50 per performance, it is estimated that the cost would be $10.00 if high-intensity arc lamps were used.

Screens.—Canvas-cloth screens painted flat white are generally used in the Hong Kong motion-picture theaters. They are made locally. In a few of the theaters walls painted flat white are also used.

Visual education.—The Director of Education has supervision over all the educational institutions in the Colony of Hong Kong, both Government and private. Visual education has not taken hold in any of the schools or colleges in Hong Kong.

The Institute of Engineers and Shipbuilders of Hong Kong, the Helena May Institute for Women, and the Chinese Y. M. C. A. all have projectors used in conjunction with their lectures and educational programs. Many of the lectures and educational programs given under the auspices of those institutions are open to the general public.

INDIA

From a report submitted by Warren G. Patterson, assistant trade commissioner, Calcutta; Edmund Monthomery, consul, Madras; and H. H. Dick, consul, Rangoon

In British India, including Burma, there are 309 motion-picture theaters with a total seating capacity of 222,655. The exact figure in the Indian States is not known, but it is estimated that there are an additional 60 theaters and some 37 seasonal theaters located in the "hill stations" which are open only a part of the year.

Large, luxuriously appointed theaters, such as are found in the United States, do not exist in India. There are a few comfortable well-ventilated theaters located in the port cities, but in the majority of cases Indian theaters closely resemble those in the United States of 20 years ago. Although the average seating capacity of an Indian theater is 800, it has been estimated that the average attendance is 200. With 309 theaters in operation there is a total average daily attendance of only 61,800. This is mainly attributed to the small number of theaters, the low earning power of the masses, and the fact that the great majority of the population reside in small villages where a theater would not be a profitable establishment.

Standard projectors.—The greater number of projectors installed in India are Pathé. This is due primarily to the fact that it costs the exhibitor just about a half of the price of a recognized American professional projector. Due to this factor, Pathé became quite popular and since the war has been increasing in demand.

Naturally, with widespread popularity, little difficulty has been encountered in obtaining dealers throughout the country, with the result that in this network of service stations, spare parts are readily available, which is an additional selling feature. The Pathé reinforced model also has a reputation of handling old films with greater ease than most makes on the market.

One American projector obtains the bulk of the high-class trade, while another is second in popularity. The sales of the latter make are much smaller than the first. Of 17 theaters in Bombay, 7 are using the first mentioned, and 9 out of 10 Calcutta theaters and practically all in Rangoon use that make. Karachi is evenly divided between the two. Taking India as a whole, it is estimated in trade circles that there are in use approximately 75 American projectors of the first make. Other less common makes in use include Gaumont, Imperator, A. E. G., Ernemann, Mechau, and Butchers.

In the early days of the industry and through the war period, the British Gaumont was very popular in India. The complete outfit ranged in price at that time from 1,500 to 2,000 rupees ($543 to $724). However, Gaumont lost its popularity directly after the war, and most of the units previously sold have been replaced by other makes.

The selling prices of projectors in India are as follows:

	Rupees
Pathe Reinforced Bioscope	1,174
American	2,300
American	2,400
Mechau	3,500
Mechau E. M. model	1,500
Ernemann	1,500
Gaumont	1,500
Imperator (Krupp-Ernemann)	2,500
A. E. G.	1,350

The import duty on motion-picture projectors, electrical motors, generators, etc., is 15 per cent ad valorem.

Most of the theaters in the port cities, such as Calcutta, Madras, Bombay, Karachi, and Rangoon, are equipped with two projectors. However, of the total 309 theaters in India it is estimated that less than 5 per cent are equipped with more than one projector. In the larger cities the theaters are equipped with modern projectors, but in the interior 80 per cent of the total are more or less obsolete models purchased 5 or 10 years ago.

In trade circles it is generally agreed that American projectors are superior with regard to clear projection, mechanical precision, control of the arc, ability to get better results from mutilated films, and their ability to function properly with a minimum of adjustment and repair. The only obstacle to more widespread use is the consideration of price and service.

One of the chief complaints against American projectors, aside from the question of high price, is the almost complete lack of service and availability of spare parts. The chief foreign competitor, Pathé, has established excellent servicing facilities and makes it a practice to lend complete machines or heads while overhauling an exhibitor's equipment. Although the market is comparatively small, American manufacturers are strongly urged to obtain a qualified agent who is willing and able to render service.

Progress in the field of exhibition in India has been sadly lacking. At the present time considerable thought and attention is being given to the industry. The Government of India Film Cinematograph Inquiry Committee has completed and published its report, in which many constructive recommendations are made. It is generally expected that the next five years will see an important increase in the amount of capital invested.

Generators.—The possibilities for the sale of American motor-generator sets to convert alternating current to direct are not encouraging, since direct current is available in all of the larger cities except Rangoon. However, a number of converters are employed to cut down voltage to between 80 and 110.

The alternating-current system is now the rule in most of the public electrical schemes, partly on account of the ease of distribution over the scattered areas frequently met with in Indian towns and partly because in many cases, such as the Punjab, there is a likelihood of alternating-current supply in bulk becoming available later on from a large hydroelectric plant now under construction on the frontier In several of the older public installations both alternating and direct current are available in the original supply areas at 450 and 225 volts direct current, and in the areas more recently developed at 400 and 230 volts on a 3-phase, 4-wire, 50-cycle alternating-current system

When the alternating-current systems are completed it should lend a stimulus to the market for converters, but, as stated, there are, at the outside, only about 309 theaters in India What share of this business American firms may obtain depends in large part upon their ability to compete with British and German equipment

Arc lamps and screens—High-intensity and mirror-reflector arc lamps are used in practically all of the theaters in the large cities, and their use is now becoming general throughout the country They have been well received and are very popular, owing to the fact that they effect a saving of approximately 10 per cent in current

Most motion-picture screens are of the canvas type, which may be easily lifted and dropped That type is employed because most of the theaters from time to time book traveling vaudeville shows Pathe supplies the greater portion of the requirements

Visual education—Visual education is not widespread in India, but there is a tendency to develop it Its promotion lies within the scope of the Department of Education, Health and Lands of the Government of India The department possesses an educational adviser styled "educational commissioner" Each Province also has a department of education, which is directly under the supervision of a director of public instruction and an inspector of European schools

Pathé has sold four or five projectors to the district board of the Hassan district in Mysore State to be used for educational purposes It is understood that the question of visual education for the whole State is being given consideration by the Government of Mysore Generally speaking, a good market exists for cameras and projectors, and it is thought advisable for American manufacturers who are interested to send catalogues and prices to the directors of public instruction in the several Provinces

Portable projectors—At the present time the introduction of amateur motion-picture cameras and projectors into India is in its infancy, and so far interest therein has been very small A canvass of dealers stocking this commodity, discloses a very enthusiastic attitude toward the development of a fair demand, and they are decidedly optimistic over the prospects of the product receiving a favorable reception within the near future when it has been given an opportunity to prove its merits One dealer feels that the market is beginning to show signs of expansion Undoubtedly, the future will bring a fair demand for products of this nature, but it is not believed that the extent of this demand will be as great and as important as dealers claim

Sources of present supply—American cameras and projectors predominate on the Indian market They are considered to be of superior quality and to possess the most up-to-date adjustments, and they are preferred to any of the other makes having representation in India French and German equipment is offered at very attractive prices, however, and this undoubtedly will affect the future market to a certain extent but dealers stocking American products appear to be aware of the situation and are prepared to counteract any effect which these low prices have by strenuous salesmanship and advertising propaganda

Prices—There are several American projectors on the market which vary in price from 1,500 to 3.000 rupees ($550 to $1 100) The prices of other equipment are as follows

German	
Kinebox	$387
Monopol—	
No 5344/3—	
With resistance	425
Without resistance	391
No 5346/4	319
No 5346/2	257
Kinox II	101
Vag accumulator for Kinox II	58
Equipped with motor drive	174
Krupp-Ernemann	670
French	
Pathé—	
Model M	48[illegible]
Model O	421
Model A	221
Model B	214

CEYLON

From report by Koyne V Gram, American vice consul, Colombo

Projectors—There are 17 motion-picture theaters in Ceylon, all of which are equipped with Pathé projectors The landed cost of such projectors is 900 rupees ($361) According to several theater managers, the Pathé projector is preferred to other makes because it is simple and easy to operate and because repairs and replacements can be easily obtained in Colombo Practically all of the theaters in Ceylon are equipped with at least two projectors, most of which are new models

Projectors must, in order to find a ready sale, be of the type that can be used on either direct or alternating current, since both kinds of current are used in Ceylon It is not uncommon in Ceylon for one section of a city to use alternating current and another section to use direct current

Arc lamps and screens—One theater, for a short time, tried high-intensity and mirror-reflector arc lamps, but the slight improvement gained thereby did not warrant the expense. All of the picture theaters in the island use ordinary cloth screens

Visual education—Matters pertaining to education in Ceylon are under the direct supervision of the Director of Education, Colombo With the exception of a few films shown recently with regard to sanitation and antimalarial work, visual education has not been tried in educational institutions in Ceylon

Three or four very small American projectors have been purchased by local residents for private use in their homes

PERSIA

TEHERAN

From report by Henry S Villard and David Williamson, American vice consuls

The past few months have witnessed an extraordinary growth in the popularity of motion pictures in Persia, the number of motion-picture houses having nearly tripled in that time Less than a year ago there were but four motion-picture theaters in Teheran and an estimated total of five in all the rest of Persia, while to-day Teheran has 10 flourishing houses, and at least 16 others are known to be in operation in different parts of the country

This remarkable change is ascribed in part to the permission recently granted to women to enter public places, such as cafés, restaurants, and theaters With their new freedom, the women seem to find in the motion picture a particularly strong appeal, and they compose a large portion of the audience at every performance

In Teheran, the capital, the names and seating capacity of the theaters at present doing business are as follows:

	Seating capacity		Seating capacity
Sepah	900	Lalezar	600
Pathe	800	Teheran	500
Marak	700	Golestan	350
Iran	670	Chhlipur	350
Ferdowsy	650	Peri	300

Only two of these, the Iran and Peri, were in operation in the spring of 1929 Two others, the Grand and the Zoroastrian, have disappeared, and the rest have been newly established

The total number of seats is thus placed at 5,820, which, however, will be increased during the summer when films are exhibited in an open-air theater located in the public park In addition, the Palace Cinema, now being erected on the Avenue Hedayat, will have a seating capacity of 1,000 and when finished will be the finest motion-picture house in Persia

Whereas a year ago Tabriz, Resht, Pahlavi, Isfahan, and Meshed were the only other towns in Persia to boast of a motion-picture theater, the first three cities now have two each, and Kermanshah, which had none, now also has two Other cities which in 1929 saw the installation of theaters for the first time were Kazvin, Barfurush, Bandar Gaz, Sultanabad, Hamadan, and Ahwas It is reported that in Bushire, Seistan, and one or two other places motion-picture theaters have also been opened, but details are as yet lacking

The theaters known to be in operation outside of Teheran, together with their seating capacity, are described as follows

	Seating capacity		Seating capacity
Tabriz	600	Sultanabad	500
do	430	Isfahan	340
Resht	500	Meshed	375
do	450	Kazvin	350
Pahlavi	480	Hamadan	300
do	380	Barfurush	265
Kermanshah	520	Bandar Gaz	250
do	300	Ahwas	250

This gives a total of 6,310 seats, but with the addition of small local halls temporarily used for exhibition purposes and a number of theaters probably unreported the actual figure is no doubt greater. Perhaps a grand total of 13,600 seats is a fairly accurate estimate for the entire country, with the likelihood that this will increase steadily from now on.

The range of admission prices in Teheran is from 1 to 5 krans (10 to 50 cents), with loge and box seats at 10 krans (approximately $1). One theater restricts its prices to 6 krans and 8 krans, and another has loge seats at 20 krans as well as at 10 krans.

In the Provinces the average price of admission is 3 krans.

Most of the motion-picture theaters in Persia are large rectangular halls equipped with benches and with chairs held together in rows by means of boards. Many of the halls have been converted from other uses and are not especially adapted to the exhibition of motion pictures. The lowest-priced seats are near the screen, while the rest of the chairs, either of hardwood or cane, afford a scale of prices depending on how far they are removed from the front. Since there is no slope to the aisles, the best seats are in the loges which are at the rear of the hall and raised above the level of the floor. Some of the theaters have small balconies.

There is usually an orchestra of 2, 3, or 4 pieces stationed behind a screen at one corner of the stage. A few of the larger theaters advertise 7 or 8 piece orchestras, but a full roll call of the members is unusual. The music generally consists of a piano, violin, and drums. Pipe organs are unknown.

Heating of the theaters is effected by means of tin stoves, but in the winter it is generally cold notwithstanding, and most of the audience keep on their overcoats during the perfomance.

Projectors.—Nearly all projectors in use in Persia are Pathé machines. No theater has more than one projector, but those employed are all fairly recent models. The reputation of the Pathé firm, coupled with the fact that an able demonstrator installed the machines when purchased, has probably been the factor in determining the theater owners in their choice of French equipment. No American projectors are in use. In Teheran the 220-volt alternating current of the municipal electric-light plant used with a transformer provides the power for most machines. Since few other municipalities have electric equipment, projectors elsewhere take a 110-volt current generated by their own power plants.

Two firms in Teheran have expressed interest in handling American motion-picture projectors. They would confine themselves to the theatrical type of projector, since the electric current in Teheran is inadequate to permit the general use of projectors.

Generators.—Generator sets are used only in industries where the cost of power is a negligible factor. The motion-picture theaters are not exceedingly prosperous and consequently are satisfied with buying their current from municipal or private suppliers. The fact that the current often fails in the middle of a reel does not seem to increase their desire to buy generator sets. Such sets are practically unknown in Persia, and none are in use as far as is able to ascertain.

Where the public current is not used in the Teheran motion-picture theaters, a rectifier is sometimes used Three such devices are in use in Teheran, and it is estimated that two other theaters employ it They are of French make and cost approximately $12

It would appear that the sale in Persia of American generators depends upon the general development of not only the motion-picture industry, but also of the use of electricity and electric equipment

Arc lamps and screens—High-intensity reflector arc lamps are in use in the motion-picture theaters in Teheran Both horizontal and vertical lamps are installed They are all Pathé equipment Each theater is equipped with one arc lamp Plain linen screens are used

Visual education—There is at present no possibility for the sale of motion-picture material to the Persian Government The Ministry of Education, which has all matters pertaining to education under its supervision, has made no move toward adopting the visual method of instruction No budgeting provisions are made for the purchase of projectors or films, and from the general position of education in Persia the guess may be hazarded that no such provision will be made for some time to come

TABRIZ

From report by Augustin W Ferrin, American consul

Projectors—There are but two motion-picture theaters in the Tadriz consular district and the operation of one of them is irregular

The projectors used are Pathé and Goerz, for which $200 and $300 was paid The principal reason for preference for those machines was price

There are no motion-picture equipment dealers in Tabriz, but the company operating the main theater, Ostfilm, with theaters also in Teheran, Pehlevi, and Resht, would be interested in receiving information about American equipment, as no American projectors are in use

Neither of the two theaters has a second projector The single projector is, in each theater, of the latest model

Generators—No equipment is required for converting alternating into direct current, as the two theaters use direct current created by their own Deutch generators

Arc lamps and screens—Mirror-reflector arc lamps are used, of Zeiss make Screens are not employed in projecting pictures, which are thrown onto a wall plastered with white gypsum.

Visual education—Visual education has not yet been attempted in purely Persain schools, but the American Presbyterian schools and the Seventh Day Adventist mission use magic lanterns for certain purposes Recently, also, one of the American missionaries has imported personally a small American motion-picture machine which she uses somewhat educationally

ARABIA

From report by Cloyce K Huston, American vice consul, Aden

The motion-picture industry in Arabia has not yet become very highly developed; in fact, there is only one public motion-picture theater in the whole of Arabia The one projector there is a fairly recent model Pathé, which was purchased secondhand in India at an undisclosed price It is presumed that the machine was not selected because of any peculiar features or superior qualities, but because it was available at a greatly reduced price

Two other projectors are in private use in Aden, being employed for weekly showings to exclusive groups of foreign residents Definite information concerning the projectors used is difficult to obtain, but they are understood likewise to have been purchased in India Since none of these machines has been subjected to critical demands, they have all proved satisfactory

As may be surmised, only the crudest arrangements and equipment are used in local showings of motion pictures. Only one projector is used, high-intensity and mirror-reflector arc lamps are not known, and the screens employed are simply plastered walls, which are occasionally given a coating of whitewash Generator sets naturally would find no sale at present

In the field of visual education nothing at all has been done in Arabia Education throughout the peninsula is either nonexistent or in the most elemental stages, the small percentage of those who are literate confining their studies in most cases to reading and writing Arabic and to the Koran It seems reasonable to say that visual education by means of motion pictures in Arabia belongs to a rather distant future

Future prospects rather than the present state of the motion-picture industry in Arabia, might be of interest to American projector manufacturers The Arabian peninsula is a vast area containing roughly 5 000 000 inhabitants, an area into which western manufactures, modern conveniences and new ideas are just now beginning to penetrate The process of change and development is slow, innovations having a bitter and often a losing struggle with custom tradition and long-established habits of life It seems probable, however, that with continued development and the gradual opening up of the territory to western commerce, even the cinema will find a place in Arab life

As a distributing center for much of Arabia, as well as for the African Somalilands, Aden is the key to the market At present there are no dealers in motion-picture equipment there

IRAQ

From report by John Randolph, American consul, Baghdad

Iraq is a country with an estimated population of 3,000,000, of whom nearly 2,000 000 are Bedouins pasturing their flocks in the deserts or cultivators living along the river banks Baghdad has three motion-picture theaters, Basrah two, and Mosul and Hinaidi one each Hinaidi is a British military cantonment, and its theater offers two shows a week only The theaters in Basrah were closed for over a year because of lack of patronage, but, reopened early in the fall of 1929. The theater in Mosul closes five months during the summer, there being no patronage, and the three theaters in Baghdad are playing to very poor houses and sometimes to empty ones

Projectors —There are three different makes of projectors in use in Iraq. The Central Cinema and the Iraq Cinema of Baghdad and the Depot Cinema of Hinaidi cantonment are all equipped with Gaumont projectors, the National Cinema of Baghdad, the Basrah, Cinema of Basrah City, and the Royal Cienma of Ashar, Basrah, are all equipped with Pathé projectors, while the National Cinema of Mosul is equipped with an American projector

It has been impossible to ascertain the cost price of these different projectors, as all of them are comparatively very old models The Gaumont projector of the Central Cinema cost, it is understood, in American projector about $545, but it was purchased secondhand the neighborhood of $725 several years ago Also, it is understood the owners of the National Cinema in Mosul actually paid for their from someone else who had imported it with the idea of opening a motion-picture theater and then abandoned the idea and sold the projector

It is difficult to say what special features made the three above-mentioned projectors appeal to the parties who imported them The appeal of the American machine was undoubtedly its low price and immediate availability The appeal of the Gaumont, it is understood, was its good reputation of durability and service

There are no equipment dealers who might be interested in handling American motion-picture projectors, as there is no demand for projectors for theatrical uses, nor is there a demand as yet for projectors for nontheatrical uses Perhaps the demand for projectors for nontheatrical uses will develop as educational methods develop and school equipment is improved

The different theaters in Iraq are each equipped with one projector only

The projectors in use in this country, as mentioned previously, are all old models The Gaumont projector of the Central Cinema is about 5 years old, but was rebuilt two years ago, and a new arc lamp added The Gaumont projector of the Iraq Cinema is about 4 years old and was also rebuilt two years ago, and a new arc lamp added The Gaumont projector of the Depot Cinema at Hinaidi is an old projector rebuilt quite recently.

The Pathé projector of the National Cinema of Baghdad is about 6 years old, and those of the Basrah Cinema and the Royal Cinema of Ashar, Basrah are still older

The American projector of the National Cinema in Mosul is 7 years old, but was rebuilt 2 years ago and a new arc lamp added It is difficult to say whether or not American projectors are considered to give better service than other makes

Generators—The possibilities for the sale of American generator sets for use in motion-picture theaters in Iraq to convert alternating current to direct current is said to be nil The Central Cinema of Baghdad, the Iraq Cinema of Baghdad, and the National Cinema of Baghdad all have their own Ruston Hornsby engines producing direct current of 110 volts and 120 amperes The Depot Cinema at Hinaidi also has its own engine The Basrah Cinema, the Royal Cienma at Ashar, and the National Cinema at Mosul have generator sets which convert direct current of 220 volts to direct current 110 volts

Arc lamps and screens—High-intensity and mirror-reflector arc lamps are in use in some theaters in Iraq The screens in use are cotton cloth. Until recently the Iraq Cinema had a whitewashed wall, but a cotton cloth screen was installed.

Visual education.—The only visual education attempted in Iraq so far consists of a collection of photographs showing the Arabic or Moorish architecture in Spain brought in by Saty Beg al Hasri, who is now the head of the High Training College, and a collection of photographs of the works of great painters, brought from Paris by Mrs. Alma Kerr, principal of the Girls Training College. Motion-picture projectors and worthwhile educational films might be a great help and will doubtless come in time.

TURKEY

From report by Julian E. Gillespie, American commercial attache, Istanbul

As yet Turkey is a relatively small market for the sale of motion-picture projectors and projection equipment, owing to the very small number of motion-picture theaters in the country. It is estimated that the total number does not exceed 100, of which 25 are located in Istanbul. In that city there are five large theaters having a seating capacity of 800 to 1,200 each. All other motion-picture theaters are much smaller in size, having a seating capacity of only 200 to 600. With the exception of the leading theaters in Istanbul, Smyrna, and Angora, all the other establishments are poorly and primitively equipped, their owners having a very little operating capital and being obliged to use cheap equipment and films. In view of the low purchasing power of the great majority of the population in the interior no modern or large motion-picture theaters can be established and operate successfully throughout the greater part of the country. The majority of the owners of motion-picture theaters throughout Turkey operate on a very small scale, and, in addition, practically all of them are more or less uninformed concerning modern motion-picture developments and improved equipment.

Increased sales of motion-picture equipment, as well as the increase in the number of motion-picture theaters, are largely dependent upon an improvement of social, educational, and economic conditions. Although it can not be denied that the present Government has put into application in the course of the past few years a number of laws and regulations tending to promote the cultural and social standards of the population, it will undoubtedly require considerable time for this movement to yield the desired results.

Projectors.—Prior to the war motion-picture projectors were supplied largely by French and to a certain extent by German manufacturers. Among the French products, Pathé equipment was introduced at the time when the first local motion-picture theaters were established and enjoyed a marked preference on the market. During the war, when it was impossible to obtain other than German and Austrian equipment, the Pathé lost its former share of the business in projectors to German firms. Immediately after the war the Pathé and Gaumont companies resumed their projector sales; later, however, after the treaty of Lausanne, German trade with Turkey was reestablished. At the present time about 50 per cent of the projectors imported are of German make, Goerz, Ernemann, and A. G. French projectors are mainly Gaumont machines, Pathé products having lost in the course of the past few years their former popularity It is generally stated that German projectors are acquiring increasing popularity, and their sales are gradually increasing

The selling price quoted in Turkey to purchasers of projectors varies according to importance of individual buyers as well as according to payment terms Of the four types of German Ernemann projectors supplied, the Imperator No 1 and Imperator No. 2 are the principal individual large types, being quoted at about $375 and $565, respectively, including the cost of complete equipment

The Ernemann Kinox projector is retailed at $56 to $70 The Ernemann president, a small theatrical type, is also sold occasionally.

The prices quoted for other German makes are more or less in line with those quoted on Ernemann products The French Gaumont projectors are stated to be sold at a slightly lower price

In a general way German photographic apparatus has always had the reputation in Turkey of being the best, most precise, and most attractive, and to represent the latest achievements in technical perfection Moreover, theater owners consider them simpler to operate and that they run smoother and generally present a number of other advantages

American motion-picture projectors are practically unknown on the market It is reported that just after the war some four or five American projectors were imported but it has not been possible to learn by whom they are being used at present, and what the reaction of their owners is with regard to their operation One of the above American projectors is stated to have been sold at auction in the Turkish costomhouse for $150

The consensus is that American projectors are too expensive for the market and, in addition, too complicated for the average operator in this country Cheapness of price, solidity of construction, and simplicity of operation are the dominating factors in the sale of projectors in Turkey It is believed by local dealers and theater owners that American manufacturers of motion-picture projectors would probably not be in a position to supply cheap and simple products similar to German projectors, and that in view of the few projector sales at the present time, American manufacturers would probably show little or no interest in entering the Turkish field Furthermore, it is not believed that they would be disposed to make liberal arrangements with either an exclusive sales agent or an individual dealer

In the event American manufacturers are interested in the Turkish market, and are able to furnish motion-picture projectors and equipment competitive in price with German products, they should furnish a supply of adequate descriptive and illustrative literature, price lists covering the projectors and spare parts and equipment, and an outline of the most favorable agency, sales, and credit terms which they will allow.

In view of the fact that the total annual sales of projectors at present are only about 10 to 15 units, and that these sales are entirely of the German and French machines, it would be difficult to induce local agents or dealers to invest in American projectors which are unknown locally and which are considered to be expensive However, if an expert, aggressive, reliable, and financially responsible agent or dealer were offered favorable consignment or credit terms, appropriate advertising allowances, and cooperative assistance by American manufacturers until American projectors become known and appreciated it might be possible to arouse a certain interest in American products especially in theatrical types. Practically all motion picture theaters in Turkey own and operate a single projector. There are four or five theaters which have two projectors. By far the greater proportion of the projectors used in the larger Istanbul theaters, as well as in the better establishments in the interior, are of the latest models. Late models are also used to a certain extent in second and third class theaters. A certain amount of second-hand equipment which has been acquired from the larger local theaters and repaired, may be found in a number of small theaters, both in Istanbul and in a number of towns in the interior.

Generators.—With the exception of Istanbul, which has the largest electric light and power plant in the country, only four or five other cities in the country have electric-generating plants. Motion-picture theaters in towns where there is no electric plant have individual motor and dynamo installations for the production of their electric and lighting requirements.

The larger theaters in Istanbul and those towns which have central electric light and power plants convert the alternating current to direct current by means of generator sets, which are supplied largely by the Allgemeine Elektrizitaets-Gesellschaft, the Siemens-Schukert Werke, and to a lesser extent by the Ganz company. The small and poor theaters operate to a great extent with the alternating city current, using cheap transformers merely to reduce the voltage to their own requirements. This procedure is due to the low purchasing power of owners of small theaters, who can not afford generator sets for conversion of alternating into direct current. The result is, of course, bad projection.

The German generator sets are supplied from consignment stocks of the local branches of the German companies, which extend liberal credit and also sell their equipment to local theater owners on installment plans. The German products enjoy great popularity and are given ready preference. They are generally considered to be of satisfactory quality, of solid construction, and cheap in price. Considering these factors, as well as the fact that they are obtainable at favorable payment terms from local stocks, and that, on the other hand, American generator sets are practically unknown and believed to be too expensive for local requirements, interested parties expressed the opinion that it would be extremely difficult to develop any worthwhile business in American generator sets. At any rate it would be difficult to induce local dealers in electrical appliances to invest in American generators on a direct purchasing basis. In the event of low prices and liberal credit terms, local agents might possibly evince an interest in American generator sets, but even under such conditions only very small business in the sets may be expected.

Arc lamps and screens.—It is estimated that about 75 per cent of all motion-picture theaters in Turkey use mirror-reflector arc lamps. By far the greatest majority, probably 90 per cent, use white linen screens, the other establishments projecting their pictures on the stage wall, which is coated with gypsum.

Visual education—All matters pertaining to public education are governed by the Ministry of Public Instruction in Angora, which is represented in the various Provinces by directors of public instruction attached to provincial governments

The use of motion pictures and other mediums of visual education in the various educational institutions of Turkey is exeremely uncommon The equipment of the majority of Turkish schools is rather primitive, while advanced and modern methods of instruction are almost entirely lacking Motion pictures, however, are occasionally projected in the colleges and university at Istanbul. but even in those institutions there is no regular or systematic program of visual education

SYRIA

From a report by J H Keeley, jr, American consul, Beirut

Projectors—Until about two years ago practically all of the cinema theaters in Syria used Pathé projectors, but now all the more progressive theaters, which cater to the higher-class clientele, employ a Krupp-Ernemann projector with a Zeiss lens. Only two theaters in Beirut, out of a total of seven, are known to be using Pathé projectors In Damascus one theater uses a Krupp-Ernemann and another uses a Pathé machine, while in Aleppo there are two Pathé and one Gaumont machines in use During the summer only, a motion-picture theater at Aley, a resort in the Lebanon, uses a Gaumont

The Krupp-Ernemann projectors are sold in Beirut for $632 The usual terms are 25 per cent with order and the balance against documents in Beirut, but shipment against documents has been made Pathé sells for $321 against shipping documents in Beirut, while the Gaumont machines are shipped on consignment and are offered at $440

Aside from the requirement that the projection should be clear, steady, and silent, no other quality is required None of the theaters in operation in the territory under French mandate has more than one projector, which necessitates the almost perfect functioning of the machine in use if interruptions are to avoided

The market for projectors being relatively small, there are no dealers in the district specializing in such equipment Some dealers in optical instruments have been selling a few portable projectors, such as the Pathé Baby. Several of the dealers have also brought in nontheatrical types for sale to local schools and missionary institutions So far there has been very little demand for projectors for home use Theatrical types of projectors are not carried in stock, but are handled by commission merchants, who show their catalogues to interested parties and book orders therefrom

It is estimated that there are not more than 25 projectors in the whole territory under French mandate Five of these are known to be of the latest model, while others are old American makes of projectors are practically unknown in this market The American University of Beirut recently bought an American projector, but it is understood to be a nontheatrical type and can not favorably compare with the latest models of German machines now in use in local theaters With this exception, which does not react favorably to American machines, theatrical types of American projectors have yet to be introduced

Generators—All local theaters are already equipped with generator sets to convert alternating current to direct current Local theater owners would not consider replacing the sets they are using until they are no longer serviceable They would then doubtless follow the usual practice of ordering a new set through a commission merchant, and European manufacturers would doubtless get such orders because they are able to deliver with less delay than are American manufacturers There is no prejudice against American generator sets, however, and if the local representative of an American manufacturer were to carry a few in stock he might easily monopolize the sale of replacement generators The possibilities of the market are, however, very small

Arc lamps and screens—All local motion-picture theaters are using high-intensity and mirror-reflector arc lamps and white cloth screens Silver screens were once tried but were found to be unsuitable the complaint being that the reflection was too great

Visual education—The following Government representatives have under their supervision matters pertaining to education Conseiller pour l'Instruction Publique, Haut-Commissariat, Beirut, Ministre de l'Instruction Publique, Beirut, Ministre de l'Instruction Publique, Damascus, and Directeur de l'Instruction Publique, Latakia

In addition to these Government representatives, who have general supervision of matters pertaining to education, the president of the Foreign Educational Institutions might be advantageously approached

Visual education is not generally practiced in Syria There is given below a list of the large educational institutions which have projectors and which occasionally show some educational films Purely educational films are usually on some special subject, such as botany or zoology for students studying those subjects Anatomic films are sometimes shown by the American University of Beirut to its medical students

American University of Beirut, Beirut
Universite St Joseph, Beirut
College Francais du Sacre-Coeur, Beirut
Lycée Francais de la Mission Laique, Beirut
College de la Sainte-Famille, Tripoli
College d'Antoura, Antoura, pres Beirut
College Patriarchal, Beirut
College de la Sagesse, Beirut
College des Lazaristes, Damascus
College de Terre Sainte, Aleppo

PALESTINE

Consul Oscar S Heizer, Jerusalem

The market in Palestine for amateur motion-picture cameras is very small indeed The country is not rich, and the greater part of the inhabitants are peasants who live in villages and have simple needs, although the inhabitants of the larger towns and cities, such as Jerusalem, Haifa, and Tel-Aviv, are more prosperous, in these towns are to be found a number of foreign residents, Government officials and others.

Cameras were first introduced into Palestine several years ago by American and other tourists who visited the country and took pictures of the various points of interest. Later, some of the local camera and photographic-apparatus dealers displayed in their show windows a few of the machines, with a view to making their use more familiar in Palestine.

For the convenience of the tourists who carried such machines with them, the local film dealers began to stock film for those cameras, and some of them have installed apparatus for developing the film and preparing a positive print from it. At present one can purchase in Jerusalem standard size film as well as 16-millimeter film. Amateur projectors are also sold.

At the present time electric current for supplying these projectors is available in Haifa, Jaffa, Tel-Aviv, and Tiberias, and will in a few years be extended to other towns and cities in Palestine.

The current at Haifa, Tiberias, Tel-Aviv, and Jaffa is 3-phase, 50-cycle alternating at 220 and 380 volts. For apparatus of a load value not exceeding 1-kilowatt either single-phase current at 220 volts or 3-phase current at 280 volts is supplied; for bigger loads and for motors 3-phase current 380 volts is supplied.

The opinion of a local dealer in amateur cameras is that although the present demand for such machines is small, their sales are likely to increase in the future.

At present competition in this line is mainly between American, German, and French makes, the latter two offering strong competition, mainly with regard to price.

The prices of European machines and film selling in Palestine are as follows:

Pathé	
Camera	$40 00
Projector	25 00
Film reel of 10 meters	50
Developing	50
Zeiss Ikon	
Single-spring camera	100 00
Double-spring camera	150 00
Projector	20 00
Negative film, per meter	12
Positive film, per meter	06

ETHIOPIA

From report by Addison E. Southard, American minister and consul general

The motion-picture exhibition industry is little developed in Ethiopia. In Addis Ababa, the capital and largest city, there are five places where pictures are occasionally shown.

The curfew law of the Government requires all Ethiopians to be off the streets by dark each night, depriving theaters of native audiences. In Addis Ababa there are perhaps 3,500 foreigners, of whom probably not 5 per cent are interested in the occasional antiquated film programs offered. Obviously the business has had no opportunity for developing.

The only projectors in use in Ethiopia are Pathé machines. Owners of those projectors state that they paid from $250 to $500 each for them. There are no special features which cause them to appeal to the owners. French goods are provided with more facility for distribution in Ethiopia than goods of other origin, and that probably explains why the Pathé projectors are used.

There are no dealers in motion-picture equipment in Ethiopia, and the rare orders which develop are sent directly abroad by the individual purchaser. There is no demand to justify any dealer stocking such equipment, particularly when the occasional purchaser usually wants secondhand material which he can buy quickly and profitably in Paris or Marseille.

In each of the places where pictures are sometimes shown there is only one projector, and all are old models.

There appears little prospect for the sale of American equipment in Ethiopia.

Two of the theaters in Ethiopia have high-intensity and mirror-reflector arc lamps. An ordinary type of inexpensive white cotton sheeting is used for screens in the local places exhibiting motion pictures.

There are no government representatives having under their supervision matters pertaining to education who might be considered as prospective purchasers of motion-picture equipment. Visual education is unknown in the very few educational institutions existing in Ethiopia.

EGYPT

From report by Charles E. Dickerson, jr., American commercial attaché, Cairo; John L. Bouchal, American consul, Port Said; and Ralph B. Curren, assistant trade commissioner, Alexandria.

Projectors.—Three makes of motion-picture projectors are used exclusively in Egypt to-day, the Krupp-Ernemann, the Gaumont, and the Pathé. Up until a few years ago the French makes entirely dominated the market, but lately the Ernemann projector has been increasing in popularity, gradually replacing the old French models which pass out of use. At present it is estimated that 60 per cent of the total number of projectors employed are Gaumont, 30 per cent Ernemann, and 10 per cent Pathé.

The local selling prices of the French projectors range from $200 to $400, whereas those of the German make run from $500 to $600.

The French projectors secured the domination of the market because they were the first to be introduced, were actively represented, and enjoyed the reputation of being easy to operate. Their prices were also most attractive. Furthermore, the local representatives were well stocked with spare parts and replacement equipment. Despite its somewhat higher price, however, the German make has come into rapid prominence recently, especially among the larger and better theaters. The Gaumont projectors have the reputation of requiring spare parts after about a year, whereas the Ernemann is considered stronger, seldom requiring replacement parts, and being steadier in operation at high speed.

General commission merchants importing also for their own account would probably be willing to handle such American projectors and equipment as would compete with the Ernemann in price, quality, and payment terms The local agent for Ernemann is understood to receive most of his goods on consignment Gaumont has its own branch in Alexandria, and Pathé offers payment facilities (90 days) to its agent

An American make and the Pathé home projectors are now on sale in Egypt It is felt that other makes would have considerable difficulty in securing a foothold, as those two have special organizations and offer facilities with which few dealers would care to endeavor to compete in so small a potential market On the whole, the demand for the theatrical types is also a small one In the Port Said district there are no equipment dealers, and sufficient business could not be done to make an agency profitable

Only the very best theaters in Cairo and Alexandria have more than one projector, and the maximum is two About 20 per cent of the total are, however, fitted with double connected projectors, mostly of the Gaumont type The four houses in Port Said carry only one projector each, but keep a spare in readiness for emergency use.

In Port Said all the projectors are now of the latest models, whereas in Ismailia and Suez they are mostly of the old types In Cairo, Alexandria, and elsewhere the majority (around 70 per cent) of the projectors in use are still of the old French types, as above mentioned These are gradually being replaced by the latest Ernemann types

No American projectors are used in the theaters in Egypt at present It is understood that immediately after the war a few American projectors were imported from France, but that the importer was unable to dispose of them, as he had no stock of spare parts Although local dealers are prepared to believe that American projectors are superior to the makes already on sale, they feel that it would be very difficult to introduce them successfully if the prices and terms were not competitive with the Ernemann

Generators—Very few generator sets are used in Egypt to convert alternating to direct current Most of those in use are old and of German make Owing to cheaper initial cost, cinema owners employ transformers and rectifiers instead of generator sets in general The French Delmo and Astra transformers and the Thompson-Houston Tunger rectifier are most popular They sell at $170, $225, and $150, respectively No American generator sets have ever been introduced Although the market is not very large, it is believed that if the initial cost of the sets were not too high it would be possible to find some demand for them, as the transformers and rectifiers now in use are not found entirely satisfactory, wearing out rapidly.

Arc lamps and screens—The local motion-picture theaters employ, in general, mirror-reflector arc lamps up to 50 amperes The screens used are all of white canvas or plaster, locally made

Visual education—All matters pertaining to education are controlled by the Ministry of Education, which can purchase such educational films as it wishes The censorship of ordinary films is under the supervision of the Ministry of Interior

Visual education was started about a year ago in the Government secondary schools by the Ministry of Education and has produced very favorable results It is to be recalled, of course, that the percentage of literacy in Egypt is not over 7 per cent and that in the outlying districts visual education is unknown

ALGERIA

From report by Robert English, American vice consul, Algiers

The market for motion-picture equipment in Algeria is dependent on four classes of users: the regular picture theaters of which there are about 50 in the colony the native and open-air shows, the traveling picture show for small and remote localities, and the hire section for occasional shows and generally for purposes of demonstration or propaganda

Projectors—Three makes of projectors are in use The cheapest and most widely used make is the Pathé, which costs complete about $150 The Gaumont projector sells complete at $195 The firm Krupp-Ernemann sells for $355 complete The Ernemann is classed far above its competitors an all respects Since Germany is credited with being the inventor of the special reflector and horizontal carbon system, the Ernemann projector is valued for its high-quality material and fabrication and also for the simplicity and ease of its operation

Three theaters are said to be operated with American projectors. The only objections to them apart from high price, are that they are more complicated in their operation than the others

Principally owing to the existence of the hire system, theatrical projectors are stocked only by firms directly engaged in the film industry Projectors for other uses are stocked by certain dealers in photographic electrical, and radio supplies

The regular motion-picture theaters are equipped with two projectors each Competition is sufficient to insure that they are always of the latest obtainable model Elsewhere, in native and traveling picture shows, the age of the apparatus depends on the resources and individuality of the owner

Generators—The current in general use throughout Algeria is 110-volt 3-phase alternating, which has to be converted to about 65 volts direct The generator set in almost universal use is the Thomson Houston (French) The possibility of introducing machines manufactured in America, given reasonable efficiency, depends entirely on considerations of price Freight costs and customs duty are the two items which inflate the selling price of the machines made in America.

Arc lamps and screens—All the better-class theaters use high-intensity and mirror-reflector arc lamps The carbons chiefly in use are German.

Screens are made of either canvas or metal They are quite an inexpensive item, and are sold by Pathé and Gaumont

Visual education—With reference to the employment of motion pictures in education, it may be noted that Algeria is divided for purposes of administration into three Departments, Algeria, Oran, and Constantine. In each of these there is a "Conseil Departmental de l'Instruction Publique," of which the prefect is ex officio president.

At present visual education by means of motion pictures is almost unknown Those experiments which have been made have so far ended in lamentable failure It is quite possible that the methods of approach were defective

TUNISIA

From report by Leland L Smith, American consul, Tunis

The motion-picture industry of Tunisia is developing satisfactorily, and as electric energy is extended throughout the country (it is still confined to the largest centers), numerous theaters are sure to be opened Also, the Arab population (2 100,000), which represents 92 per cent of the entire population of the country, is still largely undeveloped, but new schools are being established and the natives are becoming movie fans very rapidly

The proximity of France, the custom of closing the principal motion-picture houses during the summer months, and the annual trips of the proprietors to Paris where the films for the coming season are leased have made the establishing of motion-picture supply houses in Tunisia unnecessary as yet in view of the comparative unimportance of the market as a whole Therefore, all projectors and equipment of all kinds are purchased in Paris at the same time the films are contracted As a result, it would be useless for American manufacturers of equipment to endeavor to do business with Tunisian dealers direct, this should rather be confided to their Paris agents which, in view of the frequent trips made by the Tunisian theater owners, will have the same advantages as the French and German producers who now handle all of their trade in the Regency through their Paris houses

Projectors—The Krupp-Ernemann, Pathé, Gaumont, and Contin-Souzo (French) projectors are the most popular

As there is no duty on projectors, German manufacturers are able to compete with French makes on even terms The small machines of all makes cost $82 50 f o b Tunis. However, recently, there has been a distinct leaning toward the Krupp projectors of higher quality, and numerous theaters are replacing their cheaper French makes by Krupp models costing approximately $250 The German make appears to have sprung into popularity in spite of the efforts of the French manufacturers to maintain the business

The German projectors appeal by their sturdy build, reliability, and clearness of projection

Most of the theaters are equipped with two projectors and it is estimated that at least 50 per cent of the projectors used are of the latest models

American projectors are unknown in Tunisia, and considerable missionary work would have to be done to introduce them

Generators—American generator sets would have to be sold through France in the same manner as other motion-picture equipment American electrical material is well known in Tunisia and would probably have better selling chances than projectors

Arc lamps and screens—All arc lamps used are of the high-intensity and mirror-reflector types

No motion-picture screens are used in Tunisia, brick walls with many coats of white paint seem to be the only system known

Visual education—The Directeur de l'Enseignement, Tunis, has complete charge of all matters pertaining to education in the Regency

Visual education—The Directeur de l'Enseignement, Tunis has schools exist for higher education Algerian or French institutions have to be attended Out of a population of 2,150,000, there are 62,000 students in all, of which less than 5,000 are in high schools

MOROCCO

FRENCH MOROCCO

From report by Frederick F Henrotin, American vice consul, Casablanca

Projectors—Four makes of motion-picture projectors are employed by cinema owners in French Morocco. They are, in order of importance, Gaumont Ernemann, Pathé, and Aubert The following sales prices are quoted at Casablanca for those machines equipped with double projectors and complete Gaumont, $470, Ernemann, $860 Pathé and Aubert, $310

In spite of its high price, the Ernemann projector is greatly liked That make and the Gaumont are easily the favorites, on account of the ease with which they can be taken apart and put together Those projectors give a clear picture and are equipped with double projection heads and one lantern for the two projectors, the change of projector being regulated automatically.

The French Moroccan market is a small one, there being only 40 motion-picture theaters in all, and of these 6 are controlled by the firm of Xiberras, of Algiers, which purchases all its equipment direct from the manufacturers The cinema owners, therefore, are in the exhibit of buying direct in France or Germany, and there does not exist in French Morocco any dealers specializing in motion-picture equipment

Nearly all cinemas are equipped with an extra projector in case of accidents As a general rule, the equipment is old, dated on the average about four years back. Cinemas are popular but are run on cheap lines, the seating accommodations and material comfort being poor on account of the lack of competition No American projectors are at present in use in French Morocco

Generators—The Thungar (French) transformer is the most popular It is equipped with two mercury lamps and is sold fully equipped for $70 The lamps last about 1 000 hours, and cost $10 each No high-intensity and mirror arc lamps are used

Screens.—The screens consist merely of a whitewashed cloth, or, in the cheaper cinemas, the whitewashed wall is deemed sufficient

Visual education.—All schools in French Morocco come under the Direction General de l'Instruction Publique at Rabat The question of visual education has been discussed, but so far nothing has been done in any of the schools, which are all public and run by the Protectorate authorities Should any steps be taken in that direction, it is practically certain that only French equipment would be purchased.

SPANISH AND INTERNATIONAL ZONES

From report by Horace Remillard, American consul, Tangier

Projectors.—In the Tangier consular district, comprising the International and Spanish zones of Morocco, there are 8 or 10 motion-picture theaters, four of which are situated in Tangier. The projecting machines used are Gaumont, Einemann, and one American machine. Foreign projectors are available at Casablanca (French zone) and in Spain at Seville, Madrid, and Barcelona. American projectors, of which there are only two in the district, were imported direct from the United States through an American citizen. It is reported that the price paid at the time (a few years ago) was $1,175 each. No American projectors are on sale in Morocco.

The two foreign makes in use are said to be giving satisfaction, their simplicity of mechanism making them popular in a country where Moors are used as operators. The Einemann projector, in spite of its higher cost, is found in half the theaters of the district.

In the French zone, projectors are equiped with double posts and one lantern for the two projectors, the change from the one machine to the other being operated automatically. In Tangier and the Spanish zone, the single-post type is used exclusively, requiring a short interval between parts. On one occasion only double posts were imported into Ceuta for the running of an American film, owing to the length of that production.

It is not believed that there are any local dealers who would be interested in handling motion-picture projectors. The market is small, and with stocks in Casablanca and Spain, the local demand is fully and speedily satisfied. Cinema owners are in the habit of writing to those sources, or even direct to manufacturers.

Nearly all cinemas are equipped with an extra projector in case of emergency. As a rule, projectors are old, but it is understood that this situation is rapidly bettering itself, foreign companies, like Gaumont, taking back old projectors and supplying new ones for a reasonable cash difference.

Generally speaking, the equipment of cinemas in Morocco is lacking in comfort and luxury, based on American standards. This is due in part to the fact that they cater principally to Moors with a low purchasing power, which element is by far the most important commercially. In Tangier two of the houses, operated in conjunction with casinos, are run more to attract patrons to the main establishments than to make a direct profit.

The two American projectors employed in Tangier are said to be the best in the city. They have two inconveniences, however; they are relatively costly, and in case of a breakdown requiring a change of parts it is necessary to write to the United States.

Generators.—Transformers are not required in the international zone, where there is a current of 110 volts direct. No high-intensity and mirror arc lamps are used.

Screens.—Screens always consist of a whitewashed cloth.

Visual education.—Schools in the international and Spanish zones have done nothing on the question of visual education. In Tangier the chief school in under the Direction General de l'Instruction Publique at Rabat, and, were steps taken to develop that form of education, French equipment would be undoubtedly purchased

LIBERIA

From report by Clifton R Wharton, American vice consul, Monrovia

The market in Liberia for motion-picture projectors and other equipment is very small There are no sales agents for motion-picture equipment, and the possibilities for the sale of such equipment are at present very remote There are five projectors in the entire country four of which are American made (one a portable projector) and the fifth French made Except for the portable projector, used by an American company upon its plantations, they are old models. White cloth sheets are used for screens

There are no real theaters, but a theater to seat about 300 people was recently constructed by a Liberian association in Monrovia Indifferent motion pictures are occasionally shown in the public halls of the larger towns

Apparently the difficulty in Liberia with the motion-picture business is the comparatively small number of people to patronize shows No census has ever been taken of the population of Liberia, but it is estimated to consist of 1,200,000 uncivilized natives in the interior, 50,000 slightly civilized natives forming the fringe of the civilized coastal settlements, 12,000 civilized Negroes, principally Americo-Liberians or their decendants, and 500 whites

Except in Monrovia and the rubber plantations, there is no electricity in the country

During the past three years, there have been only two exhibitions for educational purposes The educational adviser of the Liberian Government is interested in visual education, and it may be possible to sell him one projector

CANARY ISLANDS

From report by Raleigh A Gibson, American consul, Teneriffe

The demand for amateur cameras and projectors is small in the Canary Islands, principally because the purchasing power of the people is small There is a market available, however, and the possibilities of some sales to tourists passing through the islands

The chief imports of cameras and projectors are from France and Germany, in the order named Local preference for both projectors and cameras has been for the French products The low selling price and the advertising carried on have accomplished this

The purchasing power of the people of the Canary Islands, as a whole, is far less than in the United States, and the standard of living is generally much lower This results in fewer purchases of such articles as cameras and projectors, and what purchases are made are considered from the price standpoint more than from a quality one.

The Pathé Baby projector is found in general sale in the West Canary Island market, and also the Guyer (German) projector. Cameras of both makes are not common.

There is more interest in projectors for use in the homes, and the fact that the Pathé films can be purchased retail for 4 pesetas for those in French and 8 pesetas for those in Spanish influences their sales An undeveloped film for the Pathé camera costs 7 50 pesetas ($1 25) for three rolls of 10 meters each

The great majority of projectors are of the hand-operated type The local electric service is of 110-volt direct current in the capital, with 110 volts, alternating, in some of the interior towns

The Pathé Baby projectors are found in a number of the retail stores such as those that sell photograph supplies, musical instruments, optical goods, and even textiles They are purchased direct from France, the Pathé people refusing to appoint a representative in the island The Guyer is represented by one of the photographic supply stores A great deal of advertising in the local papers and in window displays is carried on by the stores carrying the French products

It is felt that a strong advertising campaign might prove of value in placing movie cameras and projectors on the market

The Pathé Company is giving the local dealers 60 days, and the same is true of the German company Local dealers, in turn, sell to the public on the installment plan It is felt that the above terms would have to be met to be able to compete

SENEGAL

From report by George C Cobb, American vice consul, Dakar

The two motion-picture houses in Dakar are equipped with Pathé projectors and a Gaumont machine is in use in the theater at Kayes Only one projector is installed in each of these theaters It is stated that $785 was paid for each of the projectors and that they are of a late model High-tensity and mirror-reflector arc lamps are not used

The pictures at the Cinema Central are thrown on a cement wall and canvas scsreens are used in the other houses mentioned above

Visual education —At the present time motion pictures are not used in the educational institutions in French West Africa, and it is doubtful if visional education will be employed in the near future There are very few European children in the colonies, and the schools are mostly primary schools for the natives

Matters pertaining to education in the French West African colonies are under the supervision of L'Inspecteur de l'Enseignement de l'Afrique Occidentale Francaise, Dakar, Senegal

ANGOLA

From report by John W Bailey, jr , American vice consul, Loanda

Motion pictures are very little used in Angola, there being only two theaters, which give about three programs each week, in the entire colony. Consequently, there is no market whatsoever for motion-picture equipment

All of the projectors in use are of Pathé make There are no special features for projectors that appeal to theater owners, and none of the equipment dealers would be interested in handling projectors of any type

The two theaters in the colony are equipped with two projectors each and they are very old models, none of which are of American manufacture

There is no possibility of selling in this market American generator sets for use in motion-picture theaters to convert alternating current to direct current

High-intensity and mirror-reflector arc lamps are not used

Motion-picture screens consist of simple curtains of white cloth stretched before the projectors A double projection is secured in this way and the space back of the screen is utilized by admitting natives at a small cost

Educational matters in Angola are under the supervision of the Director dos Services de Instruca Publica, Loanda Visual education is not used

PORTUGUESE EAST AFRICA

From report by Eugene M Hinkle, American vice consul, Lourenço Marques

Portuguese East Africa, including the chartered companies of Mozambique and Nyassa, has a white population of some 30,000 The only towns of any size are Lourenço Marques, the capital of the State-administered area, and Beira the center of the Company of Mozambique's territory These two towns have populations (native and white) of 40,000 and 12,000, respectively The only other towns large enough to warrant a motion picture theater are Inhambane, Quelimane, and Mozambique

Each of these towns has one theater, while Lourenço Marques and Beira have three and two theaters, respectively With the total of eight theaters for all of Portuguese East Africa, the market for motion-picture projectors and equipment is very small

Projectors—The three theaters in Lourenço Marques employ four projectors one is British and three American The approximate cost of the type of projectors used is $1 000

The American machine has been very popular, and theatrical owners attribute this to the automatic regularity of the film tension, the intermittent movement, the shutter which can be regulated with the projector running, and its perfect production and silent working

The Gil Vincente Theater has two new projectors, while the other theaters employ old models and are contemplating new purchases

Generators—There is little possibility for the sale of American generator sets to convert alternating current to direct current Electric light and power plants in Lourenço Marques are supplied by direct current For motion-picture projectors a direct current of 240 volts is used, reduced by converter to 60 volts

Arc lamps and screens—Mirror-arc lamps are used in all theaters, while the screens employed are the canvas white-coated type

Although little information is available regarding the equipment in theaters outside of Lourenço Marques, those theaters all have a very small seating capacity and employ old machines and equipment. The possibility of sales among these is negligible

Visual education.—Government supervision in educational matters comes under the jurisdiction of the Director of Services of Civil Administration (Director de Servicos de Administracao Civil). However, the Government has taken no action regarding education through the medium of the motion picture

BRITISH EAST AFRICA

KENYA

From report by Charles H Albrecht, American consul, Nairobi

There are only about seven motion-picture theaters in British East Africa, of which five are in Kenya Colony and Protectorate (three in Nairobi and two in Mombasa), one in Zanzibar, and one in Dar-es-Salaam, Tanganyika Territory A theater formerly existed in Kampala, Uganda, but this was destroyed by fire not long ago and has not been reopened The owners of the Alexandria Theater, Nairobi, the Royal Cinema Theater, Zanzibar, and one of the Mombasa theaters have erected a new cinema in Dar-es-Salaam, and there is also a project, not yet under way, for the erection of a new theater in Nairobi

Projectors—The Theater Royal, Nairobi, has recently purchased two new Kalee double-lamp houses, mirror-arc projectors, costing £200 apiece in England That theater is believed to be the only one in British East Africa having more than one projector The Lyric Theater, Nairobi, has a Gaumont projector which has been in use for about 10 years and which cost £200. Some time ago, while holding an exhibition to a small audience of Indians, this machine caught fire and was damaged, as a result of which the regular programs at the theater had to be suspended for a week while the projector was being repaired All the other motion-picture theaters in British East Africa use Pathé projectors, and practically all of them are old machines There are also about 15 American portable projectors used by the Church of England and Italian Roman Catholic missionary societies in British East Africa to attract natives to their meetings

The manager of the Theater Royal is interested in considering an American machine if the price is right, and, as most of the other projectors in use are old ones, consideration would undoubtedly be given by other theaters to the purchase of American projectors, either now or in the not too far distant future, if their advantage over machines now in use is clearly demonstrated and the price satisfactory

There are no dealers in British East Africa handling motion-picture projectors or other equipment of theatrical type Material of that sort is ordered directly by the owners or managers of the theaters, and the demand is not sufficient to interest dealers

Generators—Alternating current is in use in the district The sale of American generator sets to convert alternating current to direct current would again depend on price and advantages to be gained therefrom

Arc lamps and screens—High-intensity and reflector arc lamps are in general use in local theaters The Theater Royal, Nairobi, has a Bulman fabric screen, but the screens in general use are canvas screens of local manufacture

Visual education.—The Director of Education is in charge of matters pertaining to education in each of the British East African colonies and protectorates As yet, however, practically nothing has been done in the way of education by motion pictures, although, as already indicated they are used by some of the missions, which also conduct schools, to attract the natives A well-known American explorer and photographer files one copy of all his films with the Kenya Government as a record, but those films have not been shown to any extent. Local dealers who have agencies for amateur motion-picture cameras have held local small exhibitions of pictures taken with those cameras in order to interest the purchasing public, and some of the exhibitions have been held for school children

MADAGASCAR

From report by John S Richardson, jr, American vice consul, Tananarive

The demand in Madagascar for motion-picture equipment other than small projectors for private use is negligible There are but four motion-picture theaters in the entire colony—one each in Tananarive, Diego-Suarez Tamatave, and Manunga, and any increase in their number in the immediate future appears very improbable One theater appears to be about all that the above-named towns, even the largest Tananarive, can support, with wages of natives at their present level, and there are apparently no other towns in the colony able, under present conditions, to support even one

Projectors—Local theaters are now equipped with either Pathé or Gaumont projectors They are the only makes that have been offered for sale in the local market, and their use is due to this circumstance rather than to any preference on the part of theater operators, who would have no objection to purchasing American or any other foreign projectors if of equal merit and sold at competitive prices

The French projectors are sold to local agents of the companies for $195 to $215, c i f a Madagascar port The agents are in both cases operators of theaters, and the projectors they have so far imported have been for the most part for their own use On the very rare occasions that a sale has been made to third parties they have taken, it is understood a profit of 10 per cent

The four theaters mentioned are all equipped with projectors of the latest model, with high intensity 30/35-ampere arc lamps and mirror reflectors attached One projector only is used, but it is understood that a second one is always kept on hand by the operator for installation in case of emergency

Screens and generators—For screens the theaters use ordinary white sheeting, hung on a woden frame For conversion of alternating current to direct current they are using the Japy (French) generator, consisting of a motor which is connected to the town current and a dynamo, both attached to a cast-iron base These generator sets are furnished with the projectors and cost the agent, it is understood, aproximately $195 each, c i f Madagascar port

Visual education—Education in Madagascar is under the supervision of the Director of Education in Tananarive Up to the present time no use has been made of motion pictures for educational purposes.

Portable projectors.—The Pathé Baby projector is on sale in several stores in Tananarive dealing in books, novelties, and photographic supplies and probably in similar establishments in two or three of the other more important towns of Madagascar. They are reported to be selling very well, with the demand increasing

The projectors are of two types One type, the most favored in the local market, and for operation where there is no local supply of electric current, is equipped with a magneto, the second has a socket attachment with which to connect it to a local light circuit These have fixed retail prices of 1,350 and 650 francs ($53 and $35) respectively On these prices dealers are granted a discount of 40 per cent After payment of transportation and other handling charges from France to Madagascar, the net profit is understood to be approximately 20 per cent

SOUTH AFRICA

From reports by Samuel H Day, American trade commissioner, and G A Abbey, American vice consul, Johannesburg

Projectors—Nearly all the theaters in the larger towns of South Africa are equipped with two projectors The greatest number of theaters, however, are in small communities where only one projector suffices The equipment in the larger towns is quite modern but the great majority of projectors located in small theaters are very old. The amount of business done does not warrant the installation of new machines as long as the old ones will continue to function Practically all of the newer types of projectors in use give good service

Generators—There is a small demand for generator sets Most of the sets in use are of American make

Arc lamps and screens—The great majority of theaters in South Africa use mirror-reflector arc lamps The high-intensity arc is not favored on account of the high cost of running

Motion-picture screens in use in South Africa are usually of linen with a coating of paint or other reflecting substance In a large number of small theaters the picture is projected simply upon the white plaster wall of the building

Visual education—Visual education has not yet taken hold in South Africa in the public schools, but there is a steady increase in the use of both cameras and projectors for amateur and business purposes A number of business men in Johannesburg use projectors in their offices to demonstrate manufacturing processes and products and are finding this method of greatest benefit to their sales

PORTABLE EQUIPMENT

In the last two or three years there has been a decided shifting in the camera market of South Africa Until 1926 practically all cameras and supplies imported were solely for still pictures Several sporadic attempts had been made to introduce various kinds of motion-picture or semimotion-picture cameras, but the first popular appeal to the amateur public came late in 1925 For a long time this was confined entirely to the larger cities, and it has only been within the past six months or a year that any particular interest has been shown in the country districts At the present time, though, merchants are receiving fairly substantial orders in the country districts of the Transvaal and the Orange Free State, as well as from Rhodesia Sales have been most erratic. At times for two or three months large purchases have been made, only to be followed by an abrupt slump in the market There has apparently been no cause for any changes, which have been purely sporadic and not seasonal in any respect

Cameras—At the present time there are four American outfits in the market There are also two German machines already well entrenched in the market The Pathé has maintained a high selling average, holding over 60 per cent of the total sales

It is estimated that by 1929 the Pathé increased its sales from six to eight times over the 1925 sales American machines have also made very substantial increases, but not in the same proportion, due almost entirely to price considerations The lowest-priced American camera on the market sells for £17 ($83) A very popular American product sells for approximately £31 ($151) The Zeiss sells for £20 ($97) with a 3 5 lens

Projectors—Projectors sell in approximately the same ratio as cameras The only important projector at present on the market, aside from the American products, is the Pathé, which retails at £8 ($42) American projectors retail from £20 ($97) with resistance up to £85 ($414) A very popular standard American machine retails at £22 ($107)

Films—There are only the 9½-millimeter Pathé and the 16-millimeter films on the market The latter is an American product and retails at £1 10s ($7 30) for 100 feet or at £1 ($4 87) for 50 feet The prices include development or processing, and as there is no other processing of this type of film in the country, it follows that this concern has complete control of all 16-millimeter films The 9½-millimeter film retails at 4s 6d ($1 09) per roll of 30 feet, plus 3s, ($0 73) for development spooled up for projection

U. S. DEPARTMENT OF COMMERCE
R P LAMONT, Secretary
BUREAU OF FOREIGN AND DOMESTIC COMMERCE
WILLIAM L COOPER, Director

MARKETS FOR FRUIT JUICES AND FRUIT SIRUPS IN LATIN AMERICA

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FOREWORD

The production of fruit juices and fruit beverages in the United States has increased steadily during recent years According to the census taken in 1927, the commercial production of grape juice had a value of $5,671,487, beverages and juices from fruits other than apples and grapes had a value of $5,467,470, and fruit juices used for flavoring a value of $1,878,011 These values do not include the fruit juices produced in the home Since the census of 1927 there has been a considerable increase in the production of fruit juices and fruit sirups and in their use as beverages and for other purposes, and the output had reached an export basis

Exports of fruit juices, sirups, and flavors for beverages amounted in 1929 to 322,351 gallons, valued at $607,424 Of these exports 23 per cent went to Latin American countries, the largest importers being Panama, Brazil, Cuba, Mexico, Honduras, Colombia, Venezuela, Nicaragua, and Guatemala, in the order named A survey of the markets in Latin America indicates that there is a possibility of increasing the demand and expanding the markets for fruit juices and fruit sirups in most of those countries

The data in this bulletin, submitted by representatives of the Commerce and State Departments in Latin America, show the status of the market for fruit juices and fruit sirups in each country Information regarding tariffs and other trade restrictions affecting the sale of these products and also the names of importers and handlers of fruit juices and beverages in the countries covered may be obtained from the bureau, either direct or through any of its district or cooperative offices

These reports were compiled in the Foodstuffs Division of the Bureau of Foreign and Domestic Commerce That division will welcome inquiries from qualified American exporters for more specific information on any of the markets covered in this bulletin

WILLIAM L COOPER, *Director,*
Bureau of Foreign and Domestic Commerce.

JUNE, 1930.

MARKETS FOR FRUIT JUICES AND FRUIT SIRUPS IN LATIN AMERICA

ARGENTINA

Charles F Stephenson, Assistant Trade Commissioner

Although there is a very large yearly production of oranges, lemons, grapes, peaches, and cherries in Argentina, the local production of fruit essences, juices, and extracts has, up to the present time, been almost negligible There is a small production of unsweetened pasteurized grape juice which is not carbonated, and it is reported that a small quantity of orange-peel and lemon-peel oils is produced in the Province of Corrientes There is a rumor that the largest manufacturer of soft drinks, which now prepares nonalcoholic drinks from imported fruit concentrates obtained in the United States, will soon be able to make its products from locally produced fruits

Argentine official statistics of 1928 classify separately, for the first time, the varieties of essences imported during the years 1927 and 1928 These statistics, however, do not give the countries of origin The official statistics of 1927 show the countries in which originated Argentina's imports of essences but did not classify the varieties separately There is given below the imports of essences during 1927 and 1928 by classes

IMPORTS OF FRUIT ESSENCES INTO ARGENTINA

[In pounds]

Type	1927	1928	Type	1927	1928
Lemon	46,012	32,028	Mint	11,109	11,501
Anise	13,428	14,228	Artificial fruit essences (strawberry, raspberry, pineapple, gooseberry, etc)	15,267	15,910
Bergamot	11,186	8,309			
Orange	14 292	10,525			
Wintergreen	22,917	13,618			

The following table gives the imports of all types of essences, both natural and synthetic, including those used in the manufacture of perfumes, by countries of origin for the three years prior to 1928

ORIGIN OF IMPORTS OF FRUIT ESSENCES INTO ARGENTINA

[In pounds]

Country	1925	1926	1927	Country	1925	1926	1927
Germany	31,645	37,271	80,135	United Kingdom	14,650	21,640	64,740
Spain	5,152	5,024	7,277	Switzerland	4,806	4,751	6,130
United States	20,214	30,492	76,004	Other countries	13,366	16,279	29,530
France	73,607	91,449	76,772				
Italy	23,212	31,539	43,966	Total	195,642	243,776	397,850
Netherlands	8,990	5,331	13,296				

The above table indicates that France is by far the leading supplier of essences of all kinds Germany, United Kingdom, United States, and Italy follow in the order named, although, as mentioned before, it is very difficult to say what varieties of essences are included Conversations with Argentine importers of fruit essences indicate that Italy is the chief source of citrus-fruit essences, followed by France, England, and Germany

Germany, the Netherlands, and the United Kingdom are the chief exporters of synthetic fruit essences Imported essences, extracts, and the like, whether natural or artificial, are inspected by the national chemical office The use of artificial essences is permitted if, in the opinion of the national chemical office, they are not harmful

Italian essences, principally orange and lemon, are shipped in metal containers which contain 1 kilo (2 2 pounds) French and Spanish essences are said to be similarly packed Synthetic essences are shipped in aluminum tins which generally contain 1 kilo, while concentrated fruit essences from France, Italy, and Spain are generally shipped in metal containers which contain 1, 2, 5, and 12½ kilos each

The Netherlands and Germany are fairly large shippers of such flavors as strawberry, raspberry, and gooseberry The basic unit in this trade in Argentina is the metal container of 1 kilo, and any Americans desiring to participate should bear this in mind

Official statistics indicate that the following quantities of fruit juices were imported in recent years, in pounds 1925, 33,360, 1926, 37,035, 1927, 41,883, and 1928, 34,476

France is shown as the principal supplier of fruit juices, furnishing annually from 85 to 90 per cent of the imports Italy and Switzerland are shown as minor exporters Importers of essences indicate that these figures relate almost wholly to imports of one commodity, and emulsion made of melon or pumpkin seeds and also of almond seeds In other words, it is practically certain that the figures do not pertain to fruit juices

A very high duty prohibits the importation into Argentina of any but highly concentrated juices Soft-drink manufacturers say that it would not be possible to import prepared fruit juices and extracts and conduct a successful bottling business European firms, especially the French, Italian, and British, are exporting highly concentrated juices and essences These are diluted as required after arrival by the importers

The imports of flavoring sirups in recent years are officially reported as 60,014 pounds in 1926, 35,047 pounds in 1927, and 36,136 pounds in 1928 Germany and France are the leading sources of these extracts, each supplying about 40 per cent of the total Imports from the United States are reported as 924 pounds in 1925, 1,548 pounds in 1926, and 3,283 pounds in 1927

The principal consumers of imported fruit flavors are the candy makers, the pastry bakers, and the manufacturers of soft drinks The consumption of soft drinks, however, is not very large The most popular nonalcoholic beverage is an orange drink which varies in price from 10 to 15 cents for a small bottle On the other hand, black coffee, of which the Argentines are prolific drinkers, is available at prices of less than half that of the ordinary soft drink, while it is possible to buy one-half liter of beer for about 12 cents Fruit juices and extracts are generally distributed by commission merchants who sell to foodstuffs jobbers and also to candy, pastry, and soft-drink manufacturers

The general opinion in Argentina seems to be that European essences, especially Italian, are superior in bouquet to American essences The c i f Buenos Aires prices of European fruit essences are comparable with American varieties, while Europeans are willing to give terms to responsible houses of up to 60 days Usual quotations of European exporters are per kilo c i f Buenos Aires The most popular flavor apparently is mint, followed by lemon, anise, wintergreen, and orange Statistics indicate that the principal artificial fruit flavors imported are strawberry, raspberry, pineapple, and gooseberry

It has not been possible to procure the c i f prices of fruit essences and extracts exported from European countries A great deal depends on the degree of concentration, the quality, and other factors However, the prices of fruit essences and extracts to consumers such as candy and pastry manufacturers have been obtained These prices include, of course, transportation charges, import duties, and agents' commissions, but are subject to a slight discounts depending on payment terms

C I F BUENOS AIRES PRICES OF CONCENTRATED ESSENCES FOR SOFT DRINKS, SIRUPS, AND SODA WATERS

[Per kilo]

Type	Concentrated	Extra concentrated	Type	Concentrated	Extra concentrated
Almond	$3 87	$4 84	Lemon extra	$3 87	$4 84
Anise	3 87	4 84	Mandarin	4 64	5 80
Chocolate	3 87	4 84	Orange	3 87	4 84
Raspberry	3 87	4 84	Mint	4 61	5 80
Strawberry	3 87	4 84	Grape	3 87	4 84
Gooseberry	3 87	4 84	Vanilla	3 87	4 84
Lime	3 87	4 84	Sarsaparilla	3 87	4 84
Lemon	3 10	3 87			

The following essences, manufactured especially for sirups and ices, are not so concentrated as the above mentioned, but because they are, in major part, natural fruit essences which produce a true fruit flavor, they are sold to consumers at the rate of $4 64 per kilo for concentrated and $6 97 for extra concentrated Apricot, raspberry, peach, strawberry, ginger ale, grenadine, prune, mandarin, quince, mint, vanilla Lemon essences of these varieties are priced at $3 87 and $5 42, respectively

Condensed natural fruit juices for high-class sirups, fillings, custards, and fine candies cost as follows, per kilo Apricot, $8 57, cherry, $6 97, raspberry, $6 97, strawberry, $8 51, lemon, $4 64, mandarin, $7 74, and orange, $6 97

Pure vegetable liquid colors, such as yellow lemon, yellow orange, red orange, red strawberry, and red gooseberry, are priced at $2 10 per kilo Concentrated essences for the special manufacture of candy and pastry are quoted as follows

C I F BUENOS AIRES PRICES OF ESSENCES FOR SPECIAL MANUFACTURE OF CANDY AND PASTRY

[Per kilo]

Type	Concentrated	Extra-concentrated	Type	Concentrated	Extra concentrated
Almond	$4 64	$5 81	Raspberry	$4 64	$5 81
Apricot	4 64	5 81	Strawberry	4 64	5 81
Caramel	4 64	5 81	Lemon	----	6 97
Cherry	4 64	5 81	Orange	----	13 16
Prune	4 64	5 81	Vanilla	5 81	7 74
Chocolate	5 81	6 97	Violet	15 48	30 96

Nonalcoholic artificial aromatic oils of high concentration for flavoring of candies, custard powders, and gelatine powders are priced at $13 16 per kilo The following flavors are mentioned Banana, cherry, peach, raspberry, strawberry, and apple Natural fruit extracts for fillings and ices are quoted at $9 68, with the exception of vanilla, which is quoted at $11 61

Vegetable colors are quoted as follows Yellow in paste, $3 48, blue in paste, $5 42, caramelina in powder, $9 68, liquid carmin, $4 64, naccarat carmin No 40, $23 22 orchid, $17 42, peppermint green, $7 74, green in paste, $3 87

The following table gives the prices per kilo to consumers of essential oils and synthetic products which are used in the manufacture of candies, chocolates, liquors, etc

PRICES TO ARGENTINE CONSUMERS OF NATURAL AND SYNTHETIC ESSENTIAL OILS

[Per kilo]

Type	Concentrated	Extra concentrated	Type	Concentrated	Extra concentrated
Bitter almond	$32 00	$12 38	English peppermint	$90 00	$34 83
Oil of wormwood	60 00	23 22	Italian peppermint	80 00	30 96
Angelica seed	320 00	123 84	Manzanilla	180 00	69 66
Bergamot reggio	55 00	21 29	Japanese mint	40 00	15 48
China cinnamon	28 00	10 84	Artificial honey	45 00	17 42
Artificial cinnamon	20 00	7 74	Sweet Messina orange	36 00	13 93
Ceylon cinnamon	80 00	30 96	Bitter Messina orange	40 00	15 48
Pure lime	55 00	21 29	Vanilla	35 00	13 55
Messina lime	22 00	8 51			

BERMUDA

Clay Merrell, American Vice Consul, Hamilton

Bermuda produces no fruit juices Imports are from the United States, England, Canada, and the West Indies Local business men estimate that more than 60 per cent of purchases, with the exception of lime juices, are made in the United States because of ability to get prompt and frequent shipments, also because of generally lower prices

Fruit juices are sold by retail grocers and wine merchants, and while there is a demand for all kinds, lime juice has the greatest sale, with grape, orange, strawberry, cherry, and raspberry next

Lime juice is listed separately by customs officials, but all others are entered under the general heading of groceries, and it is not possible to give more than an estimate of the volume In 1928, lime juice valued at $2,780 was imported from the following countries England, $2,610, Canada, $65, West Indies, $105 The value of all other fruit juices for the same period is estimated by five of the leading importers to have been $5,200, and, as above stated, more than 60 per cent from the United States

The demand is general, cold drinks in some form being used in practically every home in the colony, especially during the summer season Carbonated beverages are also largely used There is, therefore, no great opportunity for increasing the demand

For the retail trade, quart and pint bottles are most in demand, although one American-made orange juice is sold in half-pint bottles or "nips" and is very popular Bottlers and fountain operators buy in from 1 to 5 gallon containers

Commission agents representing American, English, Canadian, and West Indian firms, call on local retailers weekly as do city salesmen in the larger cities of the United States, but many importers prefer direct dealing, saving jobbers' and agents' charges and, making possible lower prices to the consumer

Retail prices for quart bottles of the better grade of fruit juices are from 60 to 80 cents, pints 35 to 45 cents, half pints 20 to 30 cents

BRAZIL

A Ogden Pierrot, Acting Commercial Attaché, Rio de Janeiro

A wide variety of fruit juices is produced in Brazil The principal fruit juices in which a regular commerce exists in Brazil are orange juice, lemon juice, lime juice, coconut water, strawberry juice, and small quantities of grape juice produced in the southern States These juices are used as beverages

Grape juice is produced on a small scale in Brazil The production is far from sufficient to supply the demand, and as a result foreign grape juice, principally American, is sold in fair quantities despite the high cost resulting from the fact that the imported grape juice is practically all imported in bottles, which greatly adds to the cost of shipping and import duties The tare allowance on unfermented juices is as follows 60 per cent on bottles holding up to 125 grams of water, 50 per cent on bottles holding from 125 to 250 grams, 40 per cent on bottles holding from 250 to 500 grams, and 30 per cent on bottles holding from 500 grams to 2 kilos The grape juice made by the principal producer in Brazil is said by dealers to be of good quality and to enjoy a good sale It is sold at wholesale at $16 80 per case of 48 half-liter bottles Another small factory producing grape juice is located at Barbacena in the State of Minas Geraes This product, also said to enjoy a fair sale, is retailed at from 36 to 48 cents per half-liter bottle The grape juice manufactured in Brazil is considerably sweeter than that imported This is true of many articles, the average Brazilian preferring a sweet to a tart flavor

Import figures showing the extent of the trade in prepared and bottled grape juice and apple juice follow

IMPORTS OF GRAPE JUICE AND APPLE JUICE INTO BRAZIL

[In pounds]

Country	1925	1926	1927	1928
GRAPE JUICE				
Canada	9 621			
United States	84,478	86,656	113 903	128,246
France	547	661		170
Spain	1 327	4 455	12 180	1,098
Italy	1 168	73	40	44
Portugal	14 105	1,085	1,896	13,113
Japan		33		
Great Britain			335	119
Germany			421	79
Norway				269
Total	111 246	92,963	128,775	143,118
APPLE JUICE				
United States	13	146	215	335
Spain	2,282	992		1,984
France			104	106
Great Britain			246	
Switzerland				159
Total	2,295	1,138	571	2 584

One American manufacturer of a grape concentrate is doing a small business in Rio de Janeiro A local chain of ice-cream and soda-water refreshment parlors fashioned after the American institution is importing this concentrate in bulk and dispensing it over soda fountains and club bars diluted with carbonated water Grape concentrate is produced by several establishments in Brazil, but the quantity is not arge It is generally sold in half-kilo tins which sell at approximately 24 cents

A few large bottling companies in Brazil engage in the production of fruit-juice beverages The greatest demand is for orange juice However, the demand for fruit-juice beverages is remarkably small Such beverages as ginger ale, agua tonica (tonic water, a carbonated water with a slight quinine flavor), and guarana (a beverage produced from the powdered seeds of an Amazonian plant) are in far greater demand than fruit juices The latter is probably the most popular soft drink among Brazilians

To gain the proper perspective of the demand for bottled soft drinks in Brazil, which is necessary in arriving at an estimate of the potential market for imported fruit juices, it should be considered that, owing to the availability of the light alcoholic drinks to which practically all Brazilians limit themselves, the greater consumption is of that type of beverage Beer is undoubtedly the most popular beverage Light wines are usually to be found on the tables at meal time. The demand in cafés, hotels, etc , is largely limited to beer, guarana, ginger ale, or orange juice except at meal time Generally speaking, fruit juices are in smaller demand than any other class of beverage

The beverages that are free from alcohol, such as guarana, ginger ale, etc., are bottled by the large bottling companies which carry on this class of business as a side line to their regular brewing business Those companies distribute their products direct to retail dealers, as they do in the case of their beer

During the past few months an American-financed company has established itself in Brazil for the purpose of producing bottled orange and lemon juice This product is believed to be having a fairly satisfactory sale. Considerable advertising has been done to establish the name of the product, and although its taste is notably different from that of the natural fruit juice, it is believed that the venture will be successful The principals in this enterprise soon recognized the necessity for producing the beverage locally, after a study of conditions surrounding importation

Innumerable representatives of foreign manufacturers of bottled beverages have studied the possibilities of Brazil as an export market for their products, and only one has been successful in working up a sufficiently large demand to make the trade a paying one The manufacturer in question has, through the activity of his agent and distributor, succeeded in establishing his product in the principal cities of Brazil, but the volume sold, even after years of effort, is not large Possibly the reason for even this small amount of success, in addition to the activity of the distributor, is that the product is of particular utility in the making of punch, which is usually included among the beverages offered at large social gatherings Another imported product in this general category is sold under the name of "Beijuva" It is not bottled, but is served at bars and soda fountains It is a concentrated grape juice, to a small portion of which is added carbonated water

Since practically all of the fruit juices and other similar beverages are produced in the locality where they are sold, the matter of packing has not been an important problem for the producers Distribution is usually effected in cases, without tops, containing either 12 or 24 bottles The capacity of the average-size bottle is about a pint The bottles, of course, are produced locally, as is the case with all the other materials used

The usual retail price per bottle of these beverages is from 12 to 14 cents Mineral waters bottled a very short distance from Rio retail at the same price as ginger ale and similar beverages in the soft-drink class, yet the sale of mineral water in Rio is undoubtedly larger than that of ginger ale, despite the fact that Rio has an exceptionally pure supply of city water Imported fruit juices are of necessity sold at prices far out of line with those of locally produced beverages

As an example of the effect of import duty and other taxes as well as transportation costs, on the salability of imported fruit juices, a well-known imported grape juice sells at $1 per bottle of approximately a pint The sales of this product have increased steadily, with certain exceptionally dull years, and it is believed that a continued increase will take place However, owing to the peculiar position of this one product, it is not proper to draw the inference that other American bottled fruit juices could do equally well To succeed in the same manner, a great deal of time, effort, and expense would be required, in addition to the necessity for the product to comprise elements attractive to the Brazilian taste and not found in Brazilian beverages Another extremely difficult obstacle to the introduction of American fruit juices is the almost complete impossibility of interesting importers and distributors in handling such a product Conditions in most lines of business have been exceedingly unsatisfactory for some time, and importers are interested only in lines that they recognize as having an immediate sale, with a quick turnover of the capital invested Very few firms in lines of business which would make them logical houses to handle a fruit-juice product are in a financial position to assume the expense of carrying stocks of an unknown merchandise, defray advertising costs, and assign salesmen to the task of attempting to sell the product

Since the prospect for the marketing of American bottled beverages in Brazil is decidedly unpromising, it is believed that American bottling companies desiring to make their products known in Brazil might encounter more success if they could interest local bottling concerns in putting their product up for them By utilizing as many native ingredients, as possible and importing only those materials not procurable in Brazil, the cost of the raw material could be kept down to a minimum To interest any of the large bottling concerns, or for any American producer to handle such a proposition in Brazil on his own, it would be necessary to advertise widely It would also be necessary to produce in various parts of the country, owing to the high railway and coastal-steamer freight rates In view of the conditions surrounding the importation of bottled beverages, the production of American soft drinks could, it is believed, be best handled through permitting outstanding bottlers to put up the product in various parts of the country

In the case of bottled beverages, however, it would probably be more difficult to interest locally established concerns to take on the manufacture and bottling of any of the well-known American soft drinks, owing to the fact that the local firm would be obliged to pay royalties to or buy certain ingredients from the American manufacturer, whereas they feel themselves capable of developing their own beverages The average large brewing plant in Brazil operates in soft drinks, as previously mentioned, merely as a side line, and if any undue amount of effort or expense were involved, or if the rate of profit were not promising, they would be little interested in the proposition The bottling plants other than those engaged in brewing are few in number and are rarely in a financial position to enable them to develop a market for new beverages

BRITISH HONDURAS

G R Taggart, American Consul, Belize

No fruit juices are produced in British Honduras on a commercial basis There is merely a little pressing out of the juice from the cashew fruit for home-made wine

Most of the flavors imported are not pure fruit juices but imitation flavors, 75 per cent of which come, it is estimated, from the United States and 25 per cent from the United Kingdom

American products dominate the market apparently because they are cheaper than the English flavors, but the English flavors have the reputation of being truer to the fruit than the American, particularly for lemon, banana, and orange For pure fruit juices, there is only a very small importation, probably not more than 10 per cent of the total imports

Since the United States offers a more profitable product that is apparently satisfactory, it is not likely that much business will be diverted to foreign countries, especially to the United Kingdom where there are extra charges for boxing, packing, and forwarding

The bulk of the imports of imitation fruit juices are used by the Belize bottlers of aerated waters in the manufacture of their various flavored soda water, and a fair proportion is also used by ice-cream makers and also in connection with a small percentage of pure fruit juices. The retail merchants and druggists also sell a little of both the imitation flavors and the pure fruit juices in 1 and 2 ounce bottles.

There is, in the tropical climate, a steady all-the-year demand for cold soft drinks. Even when native citrus fruit is abundant, with oranges and grapefruit retailing for 1 cent apiece, real orange juice is not sold by the glass, apparently because bottled lemonade or orangeade is much more easily handled.

Soda water, of different flavors, especially strawberry, is most often called for by the natives, with ginger ale next in demand. Ginger ale is most popular in the better homes, and it and mineral water are used as mixers.

The demand for aerated waters is supplied principally by local manufacture and somewhat by imports. There are three bottling establishments in Belize. In other small towns there is also some bottling of soft drinks.

An immediate increased demand for fruit juices is not anticipated. For the last two years there has been a lessened individual expenditure because of the business depression. The demand could not be large in any event, because the whole colony, about the size of New Jersey, has approximately 50,000 inhabitants, with 13,000 in Belize, its capital and largest town.

The only competing products for fruit juices would be imports of aerated waters not requiring fruit juices.

Aerated waters were imported into British Honduras in 1928, and 1927, by countries and values as follows, the 1927 values being in parenthesis: United Kingdom, $1,072 ($1,518), United States, $1,683 ($922), Canada, $490 ($1,052), France, $127 ($50), the Netherlands, $23 ($82), Germany, nil ($79). The total value of imports in 1928 was, therefore, $3,295, compared with $3,703 in 1927.

Most of the imitation flavors are shipped into British Honduras in 1-gallon glass bottles packed in boxes with excelsior. A little comes in small containers of 1 and 2 ounce botltes, while pure fruit juices are imported in quart, pint, and also 1 and 2 ounce bottles.

The following c. i. f. duty-paid prices are given by two Belize importers as paid by them per United States gallon for the flavoring extracts most often called for: Vanilla, $12, strawberry, $8.50, and lemon, $7.

Sales are made through commission agents and by orders direct to distributors or manufacturers. The bottlers usually buy from the manufacturer and the merchants through the commission agents. Terms are 30 to 60 days, or 2 per cent discount for cash in 10 days.

CHILE

William van Dort, Office of American Commercial Attaché, Santiago

Although Chile has a climate and soil well adapted to fruit growing, there are only a small number of the more important growers who use scientific methods of fruit cultivation, and the majority pay little attention to their orchards once they have been planted. Partly as a result of this, the fruit-juice industry is still in its infancy and is practically confined to the activities of a few individuals, mostly in the southern section of the country, and it is generally only a side line.

Among the best-known types of Chilean sirups are those made from apples, pears, grapes, papayas, oranges, lemons, cherries, raspberries, and red and white currants Chile, because of climatic conditions, is divided into three sections, northern, central, and southern, and the different fruits listed above grow best in different sections For instance, in the southern Provinces of Chiloe and Valdivia, apples, raspberries, and red and white currants are grown with best results, in the central section, cherries and grapes, while the more tropical fruits such as oranges and lemons do best in the dry, semitropical northern zone

So far, Chilean fruit juices have been manufactured only in sirup form, and the concentrated product has not yet been attempted. The quality of the sirups appears to be satisfactory and compares very favorably with those made from imported fruit juices Both the locally made products and the sirup made from imported fruit juices are used for beverages and for flavoring other drinks, ices, and desserts

Fruit juices are not handled by distributing houses but are usually imported by the manufacturers of sirups

A rather unusual condition obtains in this industry, for the cost price of a bottle of sirup containing approximately 800 grams, manufactured from imported fruit juice, is considerably lower than that at which the Chilean product is sold to retailers While the former, if prepared by the retailer as is usually the case, costs approximately 42 cents, the sirup made from Chilean fruit costs about 60 cents per bottle The explanation lies in the fact that the imported juice is in a concentrated form, to which sugar and a thinning fluid are added to make the sirup, whereas the local product is offered in sirup form Another factor is that railway freights from local producing centers to Santiago, the principal consuming city, are very high

The importation of fruit juices is small The quantities and values imported with countries of origin are given below for 1926, 1927, and 1928

IMPORTS OF FRUIT JUICES INTO CHILE

[In pounds]

Country	1926	1927	1928
Germany	236	1,578	79
Spain	578	646	10,838
United States	2,873	1,781	2,502
France	------	------	448
Great Britain	2,660	6,623	2,795
Total	6,347	10,628	16,662
Total value	$668	$1,358	$2,505

While the total value imported during 1928 is negligible, it is interesting to note that this represents an increase of almost 300 per cent as compared with the total for 1926 It is thought that this increase is accounted for by the installation of a number of soda fountains in Santiago and in Valparaiso within the last few years

Imported fruit juices are generally packed in glass jars of approximately 5 kilos net capacity.

While very small amounts of fruit juices were brought in from France during 1928, there was a very marked increase in imports from that country during 1929 A Santiago concern has recently received shipments from a French house, paying the following prices per net kilo, in French francs Orange Lux, $1 77, strawberries, $2 75, pineapple, $4 95, and red and white currants, $2 97

Quotations are largely governed by the degree of concentration and by the reputation a certain brand may enjoy However, it has not been possible to learn just what degree of concentration is most in demand

While there is hardly any competition between the foreign and the locally made natural fruit juices, the sanitary department of the Chilean Government estimates that more than 80 per cent of the flavorings for beverages, ices, and confections are prepared from sirups made from synthetic essential oils

That department analyzes the quality of these synthetic oils used in food products and rejects those it considers unfit for human consumption At present it exercises its own judgment as to approval or rejection, but it is expected that legal provisions regulating the matter will be adopted in the near future Once such legal provisions become effective, it is probable that the use of synthetic essential oils will be more restricted, with the result that there will be a much greater market in Chile for natural fruit juices, and manufacturers who now employ the former almost exclusively will resort to the importation of the natural juices

COLOMBIA

Walter J Donnelly, American Commercial Attaché, Bogota

Colombian producers supply the bulk of the requirements of fruit juices used in the country Fruits are in abundance in all parts, and imports are limited to special preparations that are not available in Colombia Grape juice, for example, is popular and is brought in from foreign countries, chiefly the United States Mixed preparations and some extracts are imported in moderate quantities The tendency is to secure the juices in Colombia, especially the plain products as used in the homes, hotels, bakeries, and clubs

The unlimited supplies of a wide variety of fruits in all sections of the country, with the exception of Bogota, and a few other cities at high altitude, make it possible to extract the juices and market them in competition with imported products Apart from a few small factories and establishments for bottling soda, the juices consumed in the homes and frequently in clubs are prepared on the premises. Lemon, orange, raspberry, strawberry, and native juices and sirups are procured locally, with moderate quantities imported from foreign countries Special extracts and juices imported in 1927, the last year for which official figures are available, totaled 277,612 pounds valued at $29,629, of this the United States furnished 216,285 pounds worth $16,421 Spain, Germany, Great Britain, France, and others supplied the remainder

The tendency is to use increasing quantities of extracts, with the result that the United States will obtain the bulk of the requirements that can not be secured in the country American-made extracts and many juices are well known and appreciated in Colombia practically confined to the activities of a few individuals, mostly in the southern section of the country, and it is generally only a side line

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The tendency is to use increasing quantities of extracts, with the result that the United States will obtain the bulk of the requirements that can not be secured in the country American-made extracts and many juices are well known and appreciated in Colombia

Bakeries, clubs, and housewives prefer the special American preparations of all the imported lines

The success of American manufacturers in obtaining such a large share of the import trade of these articles is due to the superiority of the products, favorable prices, selection of capable agents, and effective distribution It has been demonstrated that selling through reliable and enterprising agents is the most satisfactory method As there are few exclusively wholesale houses in Colombia, the agents sell direct to consumers and manufacturers

Aside from local juices and extracts, the American products experience some competition with Spanish, German, French, and British extracts As a rule, these extracts are imported in aluminum containers

The immediate prospects for increasing the sale of American juices and extracts are unfavorable, owing to the serious economic depression prevailing throughout the country Purchases are being limited to essentials With an improvement in general conditions, the importation of extracts and special juices should advance

COSTA RICA

R W Unckles, American Vice Consul, San Jose

No fruit juices for use as beverages are produced in Costa Rica, but there are two small concerns in San Jose which make an extract from oranges, marañones (cashew), blackberries, nispero (*Mespilus germanica*), and certain other fruits in season From this extract a so-called wine is manufactured, having a certain quantity of alcohol, and sugar to a great extent This wine is quite similar to the orange, ginger, and other wines manufactured in the West Indies The national liquor factory also produces what may be classed as cordials, the flavoring consisting almost entirely of synthetic extracts, although occasionally in season a small quantity of blackberries and oranges and some other tropical fruits are used

The only imported fruit juice obtainable is grape juice manufactured in the United States

The following are the importations of essences and extracts during 1925, 1926, and 1927

IMPORTS OF FRUIT ESSENCES AND EXTRACTS INTO COSTA RICA

[In pounds]

Country	1925	1926	1927
United States	[illegible]	[illegible]	10,472
United Kingdom	[illegible]	2,658	[illegible]
Germany	[illegible]	10,818	9,927
France	[illegible]	425	[illegible]
Spain	47	150	[illegible]
Italy	400	------	130
Netherlands	1,307	2,469	1,237
Other countries	---	117	---
Total	30,460	26,090	27,857
Total value	$17,726	$14,139	$18,117

As the above statistics denote, Germany is the keenest competitor, with the United Kingdom third The Netherlands also is a relatively important supplier

Formerly it was the general practice for local drug firms to import flavoring extracts in concentrated form for jobbing to the producers of sirups and aerated water, but for some time the latter have imported direct The drug stores continue to import small quantities for sale to the general public in small units after dilution

There is no local production, and competition is confined to the countries listed in the above statistics

Containers are both glass and lightly porcelain coated aluminum bottles, ranging in size from 1 to 5 kilos each, with aluminum bottles most generally used. They are usually packed in corrugated cardboard packages containing 10 kilos each and shipped by parcel post. The following prices were taken from a catalogue of a Netherland firm, whose terms are generally 90 days sight less 3 per cent for cash Prices are net, per kilo

Effervescing material	$4 40	Peach	$1 50–2 00
Coloring material	3 20	Orange	2 40–4 80
Rose	5 00	Pineapple	1 60
Raspberry	1 40	Cream soda	4. 00
Grape	2 60	Vallineum	8 00
Kola champagne	2 10–3 20	Strawberry	3 60
Lemon	3 20	Ginger ale	2 40

The flavors most in demand are kola champagne, cream soda, and lemon, in the order given

There are no particular factors affecting prices, the local demand running from the lowest to the medium priced, where there is more than one grade of flavor

All flavoring material is imported in the highest concentrated form possible, usually dilutable six to eight times, the few soda fountains being located in drug stores A very sweet drink is demanded and easily supplied, as the production of sugar is one of the relatively important industries of the country The soft-drink industry is quite extensive in Costa Rica Probably there is no easily accessible point in the country where bottled aerated water may not be obtained

CUBA

Frederick Todd, American Commercial Attaché, Habana

Cuba is producing pineapple juice in considerable quantities, and it appears that there will be an increase in that industry Several producers of pure pineapple juice have developed their industry to the point where they are able to extract pineapple juice add pack it in air-tight 5-gallon cans which will keep for a reasonable period of time, and it appears that a market for the juice is being established in the United States

Pineapple juice is used extensively in Cuba, where it is the most popular drink It is sold in bottles and as a charged drink The juice is diluted in water There is a very extensive distribution of at least two brands of this pure pineapple-juice drink, "Jupina," manufactured at Guanajay, and "Jugo de Pina Liborio," manufactured in Habana The juice for the latter is produced on several large special pineapple plantations, at least one of which is now preparing to ship also to the United States Owing to the seasonal character of the supply of pineapple juice, considerable attention has been paid to the method of preservation so that the supply can be kept running evenly throughout the seasons of demand

Orange juice is used in bottled drinks also to a very considerable extent. There is very little sale of straight orange juice. The juice of the orange is used for supplying the bulk of one American drink extensively sold in Cuba, which, however, derives its distinctive flavor by means of an emulsion made from orange rind in the United States.

The Habana company mentioned above manufactures a drink known as "Ironbeer," apparently a mixture of various fruit juices and probably carrying certain synthetic flavors. The use of real fruit juice in these drinks is regarded as small. There is a popular drink known as "Champan Sport" which is of this general character, consisting of a thin solution of fruit juice slightly flavored with essential oils, probably of synthetic origin.

In addition to the extensive organized manufacture of pineapple juice and the somewhat less extensive manufacture of orange juice for bottling, there is probably a considerable aggregate use of the freshly prepared juices in cafés and similar resorts, where orangeade is a fairly popular drink. The juices of characteristic Cuban fruits, such as the sour sap (guanabana), lemon, orange, pineapple, custard apple (chirimoya), sugar apple (anon,) namey, tamarind, coconut, mango, watermelon, and others, are either employed directly in the preparation of cooling drinks and ices or preserved in the form of sirups for like use. Chocolate sirup is also extensively used in that way.

There is a small but strong local industry producing the sirups of the fruits mentioned, which are sold to cafés for dispensing in the forms indicated. The use of grapefruit juice seems to be small at present, but establishments are adding grapefruitade to their lists. It may be remarked that in addition to guava paste there is also the manufacture and sale of namey, mango, tamarind, orange, and other paste.

Pineapple juice is not only used in the pure, unfermented form but now appears in the form of pineapple cider and of a pineapple wine.

There is not an extensive sale in Cuba of imported fruit juices. Several of the larger and finer grocery stores carry grape juice, American cider, various berry juices, lime juice, and certain popular combinations of fruit juices well known in the United States, but their sale is small. The sale of grape juice leads very considerably. It is said that there is a considerable household use of grape juice, even among the Cubans, for medicinal purposes.

The heaviest use of imported fruit juice is of Spanish ciders. There is a large distribution of these, all "bodegas" carrying them everywhere throughout Cuba. For the most part these ciders are inclined to run hard, and certain brands resembling champagne are served in the place of wine on occasions. The sale of straight apple juice, minus the fermentation, is not strong. An attempt was recently made to substitute Spanish unfermented apple juice for American grape juice, but the sale turned out to be so small as not to warrant further importations. There does not appear to be any distinct trend in the importation of fruit juices.

The distribution of imported fruit juices is overwhelmingly through the grocery and "bodega" trade in Cuba. There is very little sale of fruit juices over the counter excepting in the case of freshly made drinks. Grape juice and cider are dispensed through the leading grocery stores and occasionally in high-class "bodegas," and grape juice has a certain sale also in drug stores An American chain store which has several branches in Habana is said to be distributing considerable quantities of grape juice by the glass

Owing to the campaign now spreading over Cuba for the consumption of Cuban products, this would not seem to be an opportune time for trying to introduce American fruit juices into Cuba The tariff on fruit juices is already so high as nearly to double the landed cost of most of our products of this class American grape juice, apple cider, and possibly other juices that can be taken either full strength or with water as beverages, might easily find an increased sale in Cuba, but if the sale became noticeably important, measures would undoubtedly be taken to restrict the importation The fact is unquestionable that with the exception of pineapple juice Cuba does not produce fruit juices of high quality for straight drinking as beverages Cuban oranges do not have the taste and flavor nor quality of juices of American oranges American interests might develop branch production in Cuba, possibly using American raw materials to some extent, but the political factor must be reckoned with

The Cuban popular drinks containing dilutions of fruit juices sell universally in 9-ounce bottles, which are usually retailed in the ordinary "bodegas" and cafés at 5 cents but cost 10 cents at more pretentious bars The dealer's cost price very frequently runs as low as 42 cents per case of 24 bottles This does not refer to the pineapple drinks, which cost more to produce and are sold by dealers at a lower margin of profit than some of the other drinks

The packing of bottled goods entering Cuba now presents a considerable problem because of the fact that the use of corrugated paper and even of cardboard in plainer form brings a high duty charge. At present, strong wooden boxes are best for cases

Although there is a heavy handicap on the importation of American fruit juices, the brands of grape juice sell at retail at a remarkably slight advance on the prices charged in the United States

The best method of handling products of this kind is through an active manufacturers' agent who will find his own way of organizing distribution

DOMINICAN REPUBLIC

Albion W Johnson, American Vice Consul, Santo Domingo

There is little or no local or home manufacture of fruit juices in the Dominican Republic Importations are small and are not believed to be increasing materially There are no recent statistics showing in what quantities fruit juices have been imported or from what countries they came

Most United States fruit-juice manufacturers catering to the market have their local agents in Santo Domingo, from whom the soft-drink manufacturers may obtain stocks Other American-made fruit juices, as well as those of British and German origin, are obtained by the consumers direct

The local soft-drink manufacturers are ever on the alert for new formulas If a new soft drink that will "take" with the public can be made at reasonable cost, the demand for its fruit-juice base will obviously increase

The fruit juices consumed in local manufacture proceed from three main sources, the United States, England, and Germany

From the viewpoint of quality the United States has a strong competitor in the British products, which are considered locally to be in general of unquestionable superiority to any other make, but which nevertheless have the drawback of being more costly than either the American or the German fruit juices The German products are the least costly, but also the most inferior in quality Hence, at the present time, the greatest demand is for fruit juices made in the United States

Barring lemon and vanilla flavors, which are made from the natural product, practically all the so-called fruit juices are synthetic

Fruit juices imported from the United States generally are received in 1-gallon glass containers, four or six in a wooden case, packed in excelsior Those sent by England are in 5-kilo and 10-kilo aluminum lined (or glazed) metal containers, four or more packed in a wooden case with sawdust Those from Germany are put up in aluminum containers with patent glazed interior surface, in 2½, 5, and 10 kilo sizes, packed several in a box, according to size, in sawdust

As before stated, prices in general are governed by quality, and they remain practically unchanged throughout the year, despite the heavier demand in the summer months The only factor materially affecting price is the size of the order One well-known American firm allows its Santo Domingo customers a discount of 10 per cent on all orders exceeding 10 gallons

ECUADOR

John T Wainwright, American Vice Consul, Guayaquil

Owing to the varied climate of Ecuador, both tropical fruits and those of the temperate zone are grown during the entire year Restaurants and ice-cream parlors generally use fresh fruit juices made from the native fruits of the country, preparing them as the need arises The favorite flavors are orange, lemon, pineapple, and naranjilla (a small, rather sour, native orange) Naranjilla sweetened with sugar is also prepared locally and sold in small bottles for use in the restaurants and cafés This product is made from fruit grown in the Ambato Valley, but the production is very small

There are about eight distilleries that make fruit sirups The principal one is in Guayaquil Strawberry, raspberry, grenadine, and orange sirups are made from the local fruit juices, and a small amount of sirups from imported essences Grape juice is also made by two companies, which also import grape juice in a concentrated form from Spain in barrels of 200 liters The quality of the grape juice produced locally is very good, and it has been a serious competitor with foreign varieties

Pure fruit essences, fruit essences mixed with chemical materials, and synthetic essences are imported It is estimated that only about 30 per cent of the imports are of pure fruit juices, as the concentrated essences are considered not only to be more economical but to give the beverages a superior aroma and flavor Strawberry, raspberry, grenadine, lemon, lime, orange, pear, and mixed fruit sirups, flavorings, and essences are imported, and also apricot, cherry, peach, strawberry, raspberry, currant, orange, and pineapple fruit juices

There are in Ecuador nine soft-drink factories and about a dozen small concerns whose production is estimated at 618,000 dozen half-bottles of nonalcoholic beverages, worth around $177,800 a year. The products include lemon cream, grape juice, and other soft drinks with fruit flavorings. They are generally flavored with imported essences.

The majority of the imports are from the United States, Germany, Switzerland, England, and the Netherlands. The American juices and essences vary considerably in both price and quality, but are favored by the largest and best factories. The two largest local producers of soft drinks buy about 50 per cent of their flavoring extracts from the United States.

The cheapest fruit juices come from the Netherlands and supply the demands of the small firms. German, Swiss, English, and Netherland firms are also represented. About 80 per cent of the fruit juices and essences are imported for the use of soft-drink producers and bottlers at Guayaquil. The business is practically entirely confined to the coast.

Below are given the only statistics available at present in regard to the importation of fruit juices, sirups, and essences. It will be noted that no figures are given for 1927, as yet, they are not available for that year. Also, the classifications were made on a different basis for 1928 than for 1925 and 1926.

IMPORTS OF FRUIT JUICES AND ESSENCES INTO ECUADOR

[In pounds]

Item	1925	1926	1928
Fruit juices			
United States			7,108
Spain			4,844
France			688
Germany			320
Denmark			90
Italy			132
Chile			64
Total			13,246
Total value			$3 109
Apple juice			
United States	1 800	1 283	
England		1 407	
Total	1 800	2 690	
Total value	$133	$171	
Grape juice			
United States	2,423	3,530	
Spain	507	1 554	
Italy		4,727	
France		580	
Total	2 930	10,391	
Total value	$386	$691	
Fruit sirups			
Germany		3 172	
Spain	342		
France	414		
England	148		
Total	904	3 172	
Total value	$58	$303	
Fruit essences			
United States	4,447	1 695	3,666
England	3,982	7 792	1 235
Germany	2 328	2,224	1,861
Netherlands	3,144	123	3 214
Italy	49	183	106
France			538
Denmark			24
Total	13,950	12,017	10,644
Total value	$6 179	$4 295	$3 8[illegible]6

The larger plants order direct from Europe and the United States, but some of the American and European houses whose products are sold in Ecuador also have an agent The agents sell to the smaller plants, and to the restaurants, and bars, small quantities as needed They receive 10 per cent commission as a rule, and the terms of sale vary from sight draft to 180 days It is customary for the European houses to give very long credits It is understood that one house distributes products on a consignment basis through an agent Its representative receives small shipments on consignments which he distributes to the small buyers Very little advertising is done The leading drug stores use a small quantity of essences, and also sell them at retail

At present, owing to the economical depression prevailing throughout Ecuador, it is not considered that there is much likelihood of increasing the demand However, in the future the demand is bound to increase, as cool, refreshing beverages are almost a necessity, and the local manufacture of soft drinks is expanding The demand from established producers of soft drinks for fruit essences and flavorings can probably be augmented by intensive salesmanship, and new plants will probably be started that will offer a larger market when economic conditions improve The producers of soft drinks do not wish to change the essences that they are accustomed to use for fear of changing the flavor and quality of their product For this reason it would be necessary to convince them of the value of a different essence or of the possibility of putting on the market a new and superior beverage through the use of an American essence. The demand for these products could be increased only by hard work and expert salesmanship on the part of an expert in the trade

The demand from the smaller producers can be increased only by placing on the market cheaper brands For them price is the determining factor, and quality is sacrificed to it The small producer of soft drinks will buy the cheapest essences possible Owing to the tariff law, the sale of small quantities of essences at a low price is difficult Legal weight on which duty is assessed includes container and wrapping, but not case and packing Therefore essences imported in small quantities in bottles have to pay a much higher duty than if imported in large quantities in drums The best method of selling to the small consumer, and of reducing the price so as to increase the demand from that source, would be to send essences in large drums to a local representative, who would bottle and distribute them

It is not thought that there is much possibility of increasing the demand for pure fruit juices, or for fruit flavorings for use in the home or even in hotels and restaurants The excellent quality, great variety, and extreme cheapness of the local fruits are severe handicaps to the sale of imported fruit juices Extensive advertising would probably slightly increase the demand, but it is considered to be doubtful that it would be worth the outlay American grape juice is not widely sold, and the demand for it comes practically only from foreigners. The importation of apple cider has ceased

The demand for essences can be increased by sending an expert in the manufacture of soft drinks to visit the larger producers, and by the appointment of a local representative to bottle and sell a cheaper grade of essence that would be shipped to him in bulk

The chief competition comes from synthetic products, which are often imported as if they were natural juices or essences The two largest plants have small laboratories, but the amount of work that is done in them is small Otherwise there is no examination made and no attempt to regulate the importation or use of synthetic products, although the use of saccharine is prohibited by law The duty on synthetic juices and essences is the same as that for the pure product, and they sell at a much lower price Coloring matter is not imported, as it is made locally by the chemical treatment of sugar

The large factories import essences in drums of 50 liters or in large bottles The smaller ones in bottles of 1 or 1½ kilos They are generally carefully packed with wood shavings in cases of half a dozen It is best to import only in large drums and later, if necessary, bottle the shipment at Guayaquil

American grape juice and apple cider is shipped in cases of 6 dozen half-pint or 3 dozen pint bottles

All packing should be done with great care, as the goods are likely to receive rough handling while being transferred from the ship to lighters and then to shore Also, packing for shipments that might spoil should be suitable for the Tropics

The cost of locally prepared sirup is $0 20 each for small bottles in cases of 12 bottles and $0 20 extra for the case Fruit essences five times concentrated from Germany vary in price from $3 85 to $5 50 a kilo, lemon essence fifteen times concentrated costs $14, and orange juice $13 a kilo American essences range in price from $3 to $7 50 a kilo The Dutch essences are much cheaper, ranging from $1 40 to $4 a kilo Grape juice made from grapes imported from Spain sells for $1 20 for a bottle of 180 grams American grape juice c i f Guayaquil is $6 75 for a case of 72 half-pint bottles and $5 75 for a case of 36 pint bottles It is sold wholesale for $10 for 36 pint bottles and $14 40 for 72 half-pint bottles

The two most important factors affecting prices that should be noted are that essences must pay a duty according to their legal weight, and synthetic products are probably sold as pure products

Competition is very keen, especially from Germany, so that in order to increase the sales of American juices it is necessary not only to meet foreign prices, but to adapt sales methods to local conditions The majority of agents who represent concerns importing fruit juices and essences consider it as a side line, as the demand is not very great, and the large factories import directly from the United States and Europe As the sales made through agents are neither numerous nor large, they are apt to neglect this line Also, very little advertising is being done at present

In entering the Ecuadorian market the present economical situation should be considered and the fact that the earning power of the majority of the people is not sufficient for them to spend much money on luxuries Also, it should be noted that the demand for these products is practically entirely restricted to the coast

Any concern that appoints an agent should take the greatest care in his selection, and it is not recommended that any goods be shipped on consignment The greatest care should be taken in giving credit In the absence of thoroughly reliable reports as to customers' solvency, goods should be shipped only on a cash basis or against confirmed irrevocable credits in the United States There is danger in shipping with sight draft attached to documents, as consignees not infrequently decline to pay the drafts leaving the merchandise in the customhouse to "shippers' order," and under the present law the goods are subject to sale at auction if not claimed within 60 days

Quotations are generally c i f, including consular charges, which are 4 per cent of the amount of the invoice All correspondence and advertising should be in the Spanish language Direct shipments can be made from New York and from New Orleans

GUATEMALA

Joe D Walstrom, Office of Commercial Attache, Guatemala

The only fruit juices produced in Guatemala are those which are sold as beverages such as orangeade and lemonade

Essences and extracts are included under the classification of fruit juices, and these are all imported All imports are grouped under the customhouse classification of "Extracts and essences for sweet mixed drinks"

The imports under this classification for 1927 and 1928 are as follows

IMPORTS OF FRUIT JUICES, ESSENCES, AND EXTRACTS INTO GUATEMALA

Country	1927	1928	Country	1927	1928
Germany	$3,800	$2,333	Switzerland	$1,551	$330
United States	6,264	6,351	France	214	770
Spain	35	53			
Netherlands	808	294	Total	13,162	13,635
England	573	840	Total, pounds	10,660	11,040
Mexico	24	2,634			

Approximately 20 to 25 per cent of the above imports came via parcel post

During the past few years there has been a large increase in the amount of soft drinks bottled, such as those flavored with orange, cherry, and grape The flavoring essences for these beverages are usually imported direct by the bottling works, and a very large percentage of such essences comes from the United States

The soda-fountain industry in Guatemala is still in its infancy There are only three or four establishments which are equivalent to the American soft-drink parlor However, there are many small neighborhood shops, all of which carry stocks of bottled water and sometimes sell flavored beverages by the glass These soda fountains and small shops buy their extracts from the large importers It is estimated that the importation of these flavoring extracts is evenly divided between the United States and Europe

While the United States supplies practically all of the extracts for bottling works, Europe naturally supplies most all of the essences (such as grenadine and orchato) which are used in making cocktails and other drinks It must be borne in mind that in Guatemala soft drinks compete with alcoholic drinks

Essences in smaller quantities, especially those coming via parcel post, often are shipped in 1 or 5 pound sealed tins Other essences, such as grenadine from Europe, are frequently put up in bottles On account of the relatively high freight rates and import duty, some saving would be effected by the use of tin containers, assuming that this means less weight

HAITI

George D Lamont, American Vice Consul, Port au Prince

There is no commercial production of fruit juices in Haiti Several individuals have made unsuccessful attempts at such production in connection with the manufacture of preserves and beverages, their failure has been attributed to lack of demand, high price of their supplies, and lack of skilled labor One attempt to manufacture preserves from fruit juices on a commercial scale was hampered by the high cost of containers and sugar The manufacturer found that glass jars used as containers cost 9 cents each by the time the transportation costs and duty were paid and sugar over 6 cents per pound even though it is produced in Haiti Preserves and fruit-juice beverages are all produced in households at the present time

The following fruit juices are used in making preserves Lime, orange, grapefruit, guava, and pineapple The juice of the geville, or sour orange, is used to make English marmalade From the corosol (or sour sop) juice is extracted which is used for flavoring, especially with ice cream Juice of limes, oranges, lemons, and grapefruit is used for beverages

The following table gives the value of imports of fruit juices, except grape juice, by quantity, value, and country of origin for the fiscal years ended September 30 of 1928, and 1929

IMPORTS OF FRUIT JUICES (EXCEPT GRAPE JUICE) INTO HAITI

Country of origin	1927-28		1928-29	
	Liters	Value	Liters	Value
France	3,150	$693	91	$63
Germany	434	226	18	14
United States	79	37	155	120
Total	3,663	956	264	197

The following table gives the imports of mineral and medicinal waters, aerated or carbonated waters, sweetened or flavored waters, kola, grape juice, ginger beer, root beer, and other nonalcoholic beverages for the fiscal years ended September 30 of 1928, and 1929:

IMPORTS OF NONALCOHOLIC BEVERAGES INTO HAITI

Country of origin	1927-28		1928-29		Country of origin	1927-28		1928-29	
	Liters	Value	Liters	Value		Liters	Value	Liters	Value
Belgium			175	$61	Netherlands	1,472	$782	456	$280
Canal Zone			57	37	United Kingdom	4,193	1,885	20	4
France	22,659	$3,787	15,457	2,664	United States	16,710	4,609	11,244	4,171
Germany	6,290	1,096	1,120	290					
Jamaica	35		42	13	Total	51,387	12,159	28,571	7,520

The following table gives the imports of liquor essences and extracts for the preparation of drinks even without alcohol during the fiscal years ended September 30 of 1928, and 1929. This classification also includes patent medicines containing more than 14 per cent alcohol.

IMPORTS OF LIQUOR ESSENCES AND EXTRACTS INTO HAITI

Country of origin	1927–28		1928–29		Country of origin	1927–28		1928–29	
	Kilos	Value	Kilos	Value		Kilos	Value	Kilos	Value
France	1,656	$1,974	3,001	$3,382	Switzerland	1	$4	----	----
Germany	194	391	831	1,898	United Kingdom	2,456	6,115	1,797	$5,434
Italy	----	----	71	79	United States	6,442	9,212	8,590	10,241
Netherlands	184	369	170	406					
Dominican Republic	11	17	----	----	Total	10,944	18,082	14,460	21,440

An increasing proportion of fruit juices now comes from the United States. The Brasserie Nationale, which produces on an average of 2,400 bottles of carbonated beverages per day, is now one of the principal importers. All of the fruit juices and extracts it uses come from the United States. It imports actual extracts of orange, lemon, and lime. Synthetic juices imported by that organization are for the manufacture of grape soda, cherry soda, and root beer. Extract of kola nut for the manufacture of the beverage kola comes largely from European countries. This product is not manufactured by the Brasserie Nationale but by numerous individual producers. Fruit juices and extracts of fruit juices imported by the various pharmacies usually come from European countries. Pharmacies and other dealers, except those who manufacture beverages, import orange, lemon, cherry, and pineapple juice.

Fruit-juice beverages and soft drinks manufactured of fruit juices are sold in innumerable small shops, in grocery stores, at bars where alcoholic liquors are sold, and at various clubs. Imported fruit juices and beverages are usually obtained through local commission agents, although a few are accustomed to obtaining them by direct importation.

The possibility of increasing the demand for fruit juices depends upon several factors. The average purchasing power of the Haitian people is very small. However, they do buy cheap candy and confectionery, and kola has a wide sale throughout the country. Any large increase in demand would probably be contingent upon an augmented industrial development of the country with a consequent increase in purchasing power. Any beverage to be popular with the native population should be cheap and should be sweet. Both of these factors are combined in kola. That beverage is not only sweet but it retails at 3 cents for a 6-ounce bottle and 5 cents for a 12-ounce bottle.

Kola, known locally as kola champagne, is made locally by several individual manufacturers. The extract from which the beverage is made is mostly imported from England. One importing firm sells the extract to the various manufacturers. Although it may be obtained with practically any flavor, the extract is usually imported in lemon, orange, grenadine, ginger ale, raspberry, and strawberry flavors

The following soft drinks are manufactured by the Brasserie Nationale and usually retail for 5 cents per 6-ounce bottle Coco cola, root beer, orange crush, lemon crush, lime crush, grape soda, cherry soda, and ginger ale The average daily production by the organization is 2,400 bottles Its products have become increasingly popular since its organization in 1927 and at present are marketed in all the important cities of Haiti All of the above products are carbonated.

The local manufacture of an American punch was started in 1929. This beverage is not carbonated It consists of a patented grape flavoring mixed with sugar sirup and water The flavoring is imported from the United States It does not have a wide sale at present but is becoming increasingly popular The usual retail price is 5 cents per 6-ounce bottle Grape juice is the only pure-fruit beverage sold in Haiti at present It is imported from the United States in 4-ounce bottles Each such bottle usually retails for 20 cents Because of its high price it finds but a very small market

All fruit juices except kola, imported for flavoring carbonated beverages and for the punch mentioned above, come in 1-gallon glass jars Kola extract is imported in glass jars of 2½ kilos and earthen jars of 5 kilos Other extracts are imported in 55-gallon barrels already mixed with sugar sirup

Jars of fruit juices and fruit-juice extracts are shipped in wooden cases with straw packing to prevent breakage

The following are the landed costs at Port au Prince of various fruit juices and fruit-juice extracts used in making beverages Orange, lemon, and lime crush, $20 per gallon, grape, cherry, ginger ale, root beer, and punch, $14 per gallon

Kola extract costs $4 to $5 per kilo f o b Manchester, England None of the foregoing are really extracts of fruit except kola, orange crush, lime crush, and lemon crush The punch is made with an artificial grape flavoring

MEXICO

Albert F Nufer, Assistant Commercial Attaché, Mexico City

The market in Mexico for imported fruit juices is very small With the exception of small quantities of grape juice and apple juice imported from the United States in bottles (quarts, pints, half pints, and eighths), no fruit juices are imported into Mexico

An American company installed a plant for the production of orange juice about a year ago This plant has a capacity of 10 tons of oranges daily Another firm prepares small quantities of raspberry and strawberry sirup in 1-liter bottles and in demijohns, for which a limited demand exists, chiefly among the foreign population There is no other commercial production of fruit juices in Mexico

There is a very large demand for fresh-fruit drinks and refreshments, in Mexico, but the innumerable refreshment stands and ice-cream parlors where soft drinks are sold prepare their own fruit juices

In view of the abundant year-round supply of fresh fruit in Mexico and to the high import duty on the imported article, it would appear to be rather impracticable to try to sell imported fruit juices

NICARAGUA

Girvan Teall, American Vice Consul, Corinto

Juice fruits such as oranges, limes, and pineapples are abundant in Nicaragua, but there is no regular industry engaged in the extraction of fruit juices Restaurant and bar owners and vendors of soft drinks extract the juices themselves, keeping on hand only sufficient quantities to meet the demand of a day or two Orange and lime drinks are sold on the streets by native women, and fresh fruit is so inexpensive as to make the use of imported fruit preparations by those vendors out of the question Oranges and limes generally sell for about 40 cents a hundred

Import statistics do not show the amount of fruit juices imported It is believed that any juices in the form of sirups are included under an item "Other beverages and fruit juices," which totaled about $13,000 in 1928 According to local manufactures of nonalcoholic drinks, not over $5,000 of that total is made up of imported fruit-juice preparations With the exception of grape juice, which was introduced some time ago with little success, it is believed that no fruit juices in their natural state are shipped into the country Imports are largely made up of essences or synthetic flavorings which are used to form the basis of soft drinks The most popular flavor of this type is cola, which forms about 50 per cent of total imports The remainder is made up almost entirely of lemon, strawberry, raspberry, and cherry essences which are purchased by bottlers directly from the foreign manufacturer

The countries of origin of these essences are the United States, Germany, and the Netherlands, in order of importance A local bottler states that the American product is superior to the manufactures of other foreign countries in that it is stronger and consequently more economical to use

The flavorings are imported in glass and aluminum jugs Those coming from Germany contain 1 liter, while those from the United States hold a gallon The largest containers come from the Netherlands and run as high as 7½ liters The beverages into which the essences are made are prepared, bottled, and sold by small dealers directly to the public

Essences from the United States are the most expensive, costing the bottler about $12 a gallon, while the German products are quoted at about $8 c i f Corinto This difference in price, however, is balanced by the superiority of the American essences

The standard of living is low, and it is estimated that less than 5 per cent of the people have annual incomes of more than $5,000 and that about 15 per cent have incomes between $1,000 and $5,000 The low purchasing power of the people, the low cost of locally prepared fruit juices, and the increasing popularity of beer, which has recently resulted in the opening of a local brewery at Managua, are believed to be the chief factors which have tended to discourage the importation of natural fruit juices It is believed, however, that though there is little or no possibility for the sale of foreign fruit juices in their natural form, American essences might find increased sales with the aid of somewhat extensive advertising Carter's "Kola," an English beverage imported in bottles, is well established on the market, and it is only gradually that local bottlers are finding themselves in a position to produce a competing product, despite the high cost of the imported beverage The small capital of local bottlers would make it necessary for the American manufacturer to participate in at least a share of the expense of introducing their products to the market

It would seem, therefore, that sales of American fruit essences on the domestic market might be increased with the aid of an advertising campaign Whether or not such increase in sales would be worth the trouble and expense to the American exporter could, of course, only be judged after an actual trial

PERU

O C Townsend, American Commercial Attaché, Lima

Fruit juices produced in Peru consist of orange and lemon flavors used by soda manufacturers, fountain establishments, bars, and hotels in the preparation of beverages

The imports consist of grape juices and juices other than orange and lemon, also of flavoring extracts for soda water and confectionery There is a downward trend in the imports from year to year, owing to an increased consumption of domestic fruit juices

Imports come direct to soda-water and confectionery manufacturers, soda-fountain establishments, and grocery and foodstuff dealers Orders are placed through manufacturers' agents

It is probable the demand for fruit juices can not be increased, as the use of juices obtained from locally produced fruits is growing, because of the cheapness in price of oranges and lemons, the favorite flavors Foreign competition is keen and is offered by Great Britain, Germany, and the Netherlands

The following table shows the trend of imports during the last three years

IMPORTS OF SIRUPS, FRUIT JUICES, AND FLAVORING EXTRACTS INTO PERU

[In pounds]

Type and country of origin	1926	1927	1928
Sirups and fruit juices without alcohol			
United States	14,224	8,311	6,658
Great Britain	7 324	12,194	4,555
Germany	3,258	2,368	2,747
Spain	1,517	408	154
France	1 362	886	1,931
Other countries	640	5,060	-------
Total	28 325	29 227	16,045
Soda water and confection-flavoring extracts			
Great Britian	5 194	3,620	2,288
United States	4,270	4,220	3,926
Germany	3 113	2 125	1,505
Netherlands	1 630	2,010	1,437
Other countries	335	212	112
Total	14,542	12,187	9,268

Small containers are in largest demand, to prevent breakage and to assist local importers in disposing of the goods Fruit juices for cocktails and other beverages come in ¾, ½, and ¼ liter glass bottles, packed 12 bottles to a case Retail price averages from $1 20 to $1 40 a liter

Soda water and confection-flavoring extracts come in 1-kilo and ½-kilo glass bottles and in cases of 10 to 20 kilos Prices range from $8 to $10 per kilo

The domestic confectionery industry consuming flavoring extracts is not important The growing use of local fruits further restricts the demand for foreign goods Families prepare their own fruit juices for home consumption and harbor a prejudice in favor of the fresh products from the many available tropical fruits

PORTO RICO

Rolland Welch Assistant Trade Commissioner, San Juan

Porto Rico buys approximately $500,000 worth of fruit juices and beverages annually, despite the fact that local drinks made of various fruits, nuts, and plants are usually available at low prices during the entire year

Imports of fruit juices and beverages from the continental United States and foreign countries are included in customs records under one heading It is known, however, that most of the figures under that heading are for beverages and not for juices With the exception of grape juice, Porto Rico has little reason to turn to other markets for its supply of fruit juices

There is a wide variety of drinks made locally from fruits, nuts, and even plants Probably the most popular of all locally made drinks is the "jugo de china" (orange juice), made from uncultivated oranges, frequently referred to as "wild" oranges They are known locally as "chinas" They are usually plentiful and cheap, frequently selling for less than a cent each When the fruit is scarce and the price high, the juice is generally mixed with water More frequently, however, the drink sold is pure orange juice This retails from 5 to 10 cents a glass

Grapefruit juice is also popular and generally plentiful The juice of the pineapple is less popular and is plentiful only during the spring harvest season

Agua de coco (coconut water) is popular, particularly among the country people The end is cut off the green coconut which is handed to the customer, who drinks the liquid contents and throws the husk away The ripe coconut, generally known on the mainland, contains little water and is not sold for the drink it contains Coconuts sold for the water they contain bring anywhere from 2 to 7 cents retail Green coconuts are frequently peddled from house to house in carts Wagonloads of them are to be found at the race tracks and similar public places of amusement

Guarapo de cana is a drink made of sugarcane which is popular among the poorer classes It retails from 1 to 5 cents a glass This is also peddled from house to house in cans and barrels on little pushcarts, some of them specially built, painted, and decorated for the purpose

Tamarindo is a juice made from tamarind and can usually be purchased in soda fountains and restaurants Tamarinds are frequently scarce, and that drink is not as popular as others

Refersco de guanabanas is a drink made of the juice of the local guanabana, usually found distasteful to the continental American but nevertheless sold in abundance in soda fountains and restaurants and used to a considerable extent as a flavoring for ice cream and ices

Horchata de chufa and horchata de almendras are drinks which have their origin in Spain Chufa is a dried root imported directly from Spain, while almendra is the almond The drinks are made locally and sold in nearly all soda fountains

Although all these can not be classified as fruit-juice drinks, they nevertheless have a direct bearing on the island's trade in fruit juices It may readily be seen that there is little in the line of fruit juices that the local citizens might desire Nevertheless, grapejuice is popular, and considerable quantities are shipped into Porto Rico from the mainland, little or none is imported from foreign countries The larger stores and soda fountains catering to the better class sell the best grape juice available, but the smaller places stock cheap grape juice of a wide variety of makes Loganberry juice may be obtained only in the larger and better-class groceries, which also frequently sell mixed fruit juices, generally used for punches and cocktails Soda fountains dispense various fruit drinks made from synthetic sirups, but they are not generally popular Some synthetic fruit juices and sirups are purchased from the mainland by local soda-water bottling companies, of which there are a large number

Customs records for the fiscal year which ended June 30, 1928, show that Porto Rico purchased $395,974 worth of fruit juices and beverages from the mainland of the United States Purchases during the fiscal year which ended June 30, 1929, totaled $440,820

Foreign imports were listed as beverages only, no fruit juices being included During the fiscal year of 1927–28, imports of beverages from foreign countries totaled $40,805 During the fiscal year 1928–29 foreign imports of beverages were valued at $99,748 Most of the foreign beverages are near beers

Of the total amount of fruit juices and beverages brought in from the continental United States, only a small percentage is fruit juices Most of the imports are beverages, and it is generally believed that ginger ale makes up the majority of the imports The increase in purchases during 1928–29 over 1927–28 was said to be due to the fact that the hurricane of September, 1928, destroyed most of the native fruits of the island and left little for local fruit-juice drinks Probably this also partically explains the increase in the amount of beverages imported from foreign countries, although some of this increase is due to a strong sales campaign inaugurated by a Danish exporter of near beer After that company became successful in its local sales, other foreign beer manufacturers entered the market Three foreign near beers are now directly imported and sold locally, and some others are shipped via New York

Fruit juices and beverages, including synthetic juices and flavorings, are sold locally through sales agents working almost exclusively on a commission basis Quotations are usually made c i f San Juan, Mayaguez, or Ponce, 30 days sight draft, 2 per cent discount for cash Sales agents generally get 5 per cent commission

There is little possibility of artificially stimulating the demand for fruit juices or beverages The trade possibly will be less in the immediate future, with plenty of local juices and beverages available, than in the past when the local product was scarce

Some stimulus might be given to particular brands of beverages Advertising has been found to be effective Most of this is placed in local newspapers and magazines and also through placards and window and counter displays The posters are illustrated in attractive colors and the copy is in Spanish

An American manufacturer of ginger ale has done considerable advertising through local newspapers and magazines and with small placards

The local market both for juices and beverages is highly competitive, as may be seen from the foregoing Besides the competition offered by local fruit juices, there is one local manufacturer of near beer, one bottler of mineral water from a local spring, and many bottlers of soda water Soda-water bottling plants are located in almost every town of any size in the island There is also a beverage bottling plant in San Juan, which covers all of Porto Rico

There is considerable competition between distributors of beverages. The sale of near beer has become highly competitive in its own class, and the same competition is found between distributors of ginger ale manufactured on the mainland, and between all of those distributors and local bottlers Distributors of fruit juices and fruit-juice drinks manufactured on the mainland compete with each other and also have to meet the competition offered by locally made fruit-juice drinks, which are usually very low in price

Agents for beverages frequently give special concessions to large buyers, and it has been reported that agents for both ginger ale and near beer have offered waiters in restaurants and hotels special rebates for bottle caps returned to them The agents pay the waiters up to 1 cent for each bottle cap returned This offer is made to encourage waiters to serve that particular brand when ginger ale or near beer is called for by name instead of grade or make

Bottles used locally are of the same size and shape as used on the mainland The same packing methods used for shipments in the continental United States also are generally used for shipments to Porto Rico Most of the shipments are made from New York with a journey of only four or five days to Porto Rico Cargo is unloaded at San Juan and also at Arecibo, Mayaguez, and Ponce Such a small amount of handling requires no particular care in packing Shippers make considerable use of cardboard cartons honeycombed with cardboard to keep the bottles apart Importers and local agents report that this method is entirely satisfactory and that there is practically no breakage whereas some breakage has been noted in shipments in wooden boxes Near beer is packed 2 dozen to the carton and sometimes 10 dozen to the barrel Some is shipped 5 and 6 dozen to the wooden case, wired both ends Ginger ale frequently is shipped 50 bottles to the wooden case, wired both ends, and it also comes 1 dozen in a cardboard carton, four cartons in a wire-tied bundle Beer comes in standard bottles Ginger ale usually comes in 6 and 12 ounce bottles, sometimes in smaller sizes, and grapejuice is shipped in all sizes generally used in the mainland

The demand for fruit drinks and beverages of all kinds is regulated by price A large quantity of cheap-quality drinks is sold locally. Prices for grape juice are more or less standard, although in the smaller stores catering to the poorer classes several grades of grape juice of the very poor quality can be purchased at prices considerably below those asked for quality products Quality near beer retails for 25 cents, cheaper grades sell from 15 to 25 cents Probably 90 per cent of the near beer sold locally is dark and sweet, generally classified as "stout," "double stout," and even "triple stout" Ginger ale retails for 25 cents for the 12-ounce bottle and 15 cents for the 6-ounce size The retailer makes about 8 cents on the large bottle

URUGUAY

Connie R Herron, Assistant Trade Commissioner, Montevideo

There is little or no demand for fruit sirups or fruit juices in Uruguay There are only two or three soft drinks on the market American and British ginger ale are also sold, the former being recently introduced on the market and enjoying excellent distribution Those drinks constitute almost exclusively the nonalcoholic drinks consumed in Uruguay

There is only one soda fountain located in Montevideo, and it has apparently met with little success

According to import statistics, no fruit juices are imported with the exception of nonalcoholic grape juice

The average Uruguayan does not manifest any desire to partake of soda-fountain beverages Beer is comparatively cheap, and the public uses it extensively In the interior, where beer is more expensive because of freight costs, cana is used to a large extent Women and children, as a rule, drink light wines and beer Along the beaches, parks, amusement parks, etc, orange and lemon drinks are sold, but their consumption in comparison with the alcoholic beverages is inconsequential

Obviously, customs have an important bearing on the market possibilities It may be stated that there is a very small market at the present time, but it is not unlikely that the products could be sold at a future time

The essence for soft drinks is imported by the local bottling works, and the sirup is made locally A small quantity of essence is produced locally but the amount is inconsequential The product of one orange-product company is of inferior quality and does not satisfy the tastes of the public in general Some orange pulp is imported from Europe, but its sale is small, principally because of its high costs and the almost prohibitive duties

It is probable that fruit juices may be effectively introduced by an active and extensive advertising campaign On the other hand, it is not believed that the market possibilities would justify the expenditure Customs are a difficult problem, and it would require a great amount of propaganda to sway the public to soft drinks, especially since alcoholic beverages are much in evidence

VENEZUELA

O R Strackbein, Assistant Trade Commissioner, Caracas

The market for fruit juices in Venezuela is rather small In place of fruit juices, flavoring extracts and natural and synthetic essential oils are largely used There is no production of fruit juices in Venezuela on a commercial scale, and the demand for them is therefore supplied from abroad

According to the official Venezuelan statistics, the 1928 imports of fruit juices totaled approximately $19,600, most of which came from the United States

The imports are handled nearly altogether by sales agents who sell to soft-drink bottlers and manufacturers of confectionery There are only a few direct importers

The increase of demand depends upon the gradual increase of soft-drink manufacture and such other industries as consume fruit juices There seems to be no method available for direct stimulation of demand The chief competitor of fruit juices and extracts is cola, with which most of the locally manufactured soft drinks are flavored

Importation is largely made in aluminum or glass containers and kegs Sizes range from 1 to 25 kilos, but a common size is around 5 liters The prices on the English product mostly sold is higher than quoted on most American brands, but the product is said to be more concentrated

The confectionery trade takes extract and juices such as orange, lime, lemon, vanilla, cherry, peach, strawberry, pineapple, etc

The best method of entering the market is by appointment of a sales agent

U. S. DEPARTMENT OF COMMERCE
R. P. LAMONT, Secretary
BUREAU OF FOREIGN AND DOMESTIC COMMERCE
WILLIAM L COOPER, Director

AUSTRALIAN CANNED FRUIT INDUSTRY

Trade Information Bulletin No 703

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FOREWORD

Mainly as the result of the "closer settlement schemes" of Victoria and New South Wales, in conjunction with irrigation developments in those States, the Australian canned-fruit industry has developed rapidly in recent years The production of canned apricots, peaches, and pears increased from approximately 550,000 cases of 24–30 ounce cans in 1921–22 to 1,626,000 cases in 1927–28 Two-thirds of the output is available for home consumption and one-third is exported, the respective amounts in 1927–28 being 1,089,000 cases and 537,000 cases Of the exports the United Kingdom takes from 80 to 90 per cent, the remainder being sent mostly to New Zealand and Canada Australian consumption of canned fruit has, by aggressive advertising, increased to such extent that it now amounts to around four cans per capita

Twenty canneries now process peaches, apricots, and pears By far the greater part of the production is within the State of Victoria, of which the Goulburn Valley is the principal area New South Wales—with its Murrumbidgee area, centered at Griffith and Leeton—ranks second in importance of its output

Large amounts of money have been spent on irrigation and directly on the fruit-growing industry, both by the States and the Federal Government The land producing canning varieties of fruit, however, is very small, in comparison with the available irrigated areas On the whole, there is no tendency toward increasing acreages of canning fruits

In comparison with the American, the Australian canning industry suffers from relatively low yields per acre, and its costs of production are very high Furthermore, it pays more for fresh fruit and realizes smaller prices for the canned fruits—particularly because standard grades are practically the only type packed Canned fruit sold on the Australian market returns from 12 to 36 cents per dozen more than it does for export

This bulletin treats, among other subjects, of the development of the industry in relation to irrigation—taking up the important Murrumbidgee and Goulburn Valley projects, and irrigation and soil problems—the varieties of fruits planted, the yields per acre, costs of production, canning and canning costs, grading of canned fruits, and the marketing organization of the industry

William L Cooper, *Director,*
Bureau of Foreign and Domestic Commerce.

July, 1930.

AUSTRALIAN CANNED-FRUIT INDUSTRY

Trade Commissioner E C. Squire, Sydney

The Australian canned-fruit industry has developed rapidly in recent years Production of canned apricots, peaches, and pears increased from approximately 550,000 cases of 24–30-ounce cans in 1921–22 to 1,626,000 cases in 1927–28, and production this season will probably equal the latter figure This expansion is mainly the result of "closer settlement schemes" of Victoria and New South Wales in conjunction with irrigation developments undertaken by those States Large amounts of money have been spent on irrigation and directly on the fruit-growing industry, both by States and the Federal Government Because of unexpectedly high costs during developmental periods, and for other reasons, it has been found that the canned-fruit industry can not pay expenses and interest on all moneys expended Large sums have already been written off, but not a sufficient amount for the industry to bear under present conditions

The continuation of unsatisfactory financial results caused the Federal Government a short time ago to have an economic survey made of the industry The commission made a decided recommendation against further extension at present Since then unsatisfactory financial conditions of the States and Commonwealth have caused Government treasurers to cut expenditure drastically, which probably means practically no Government-assisted extensions in the near future, and their changed policy may leave the industry with more of the responsibility for its own financial well-being

DEVELOPMENT AND ITS RELATION TO IRRIGATION

For many years canning varieties of tree fruits have been grown in nearly all the States About 1912–13 a large extension of plantings began, and came as a result of the policy mentioned of populating thickly the areas that could be irrigated on the Murray River and its tributaries—particularly New South Wales and Victoria A rapid development took place just before the war and for some time after a large amount of land had been made ready by irrigation, and the two States mentioned, in order to induce rapid settlement, financed settlers, often practically to the full extent of their requirements and giving them long terms for repayment When the soldiers commenced to return they particularly were assisted in this fashion The areas where great extensions took place and which now produce the major part of Australia's canned tree fruits were the Goulburn Valley in Victoria and the Murrumbidgee irrigation area in New South Wales

Apparently, the governments had not in all cases completely appreciated that additional outlets would have to be provided for the products of these assisted settlers The canning of fruits had previously been done by private companies It was quite suddenly realized, particularly in the Goulburn Valley, that canneries would have to be provided, and three cooperative canneries were built. At Leeton the State cannery was expanded and a cooperative cannery, also, at Adelaide, South Australia. These cooperative and State canneries were financed wholly or partially by the States, and have added to the States' financial burdens continuously, except Shepparton and Adelaide. The other three are still in that position.

While the expansion mentioned was the outgrowth of extension in irrigation, further great expansion could take place without the inauguration of any other schemes, because the land under canning varieties of fruit is very small in proportion to available irrigated areas. The likelihood of water shortage in any of the important irrigation areas in New South Wales or Victoria is remote.

In New South Wales the area under irrigated crops in 1928 totaled 74,811 acres, of which 21 000 acres were under fruit. Of the 74,811 acres, that given to hay irrigation represented 31, Wentworth (Curlwaa and Coomealla) 2,181, and Murrumbidgee 72,599 acres.

Plantings of peaches, apricots, and pears account for only slightly over 4,000 acres in the Murrumbidgee area. Since 1928 there has been a large increase in land under irrigated crops and land irrigated not under crops in the Murrumbidgee area, yet the acreage under fruit has not increased. The total land under irrigation in 1930 in the Murrumbidgee area is about 140,000 acres.

MURRUMBIDGEE AND GOULBURN VALLEY IRRIGATION PROJECTS

In view of the relationship outlined, a brief description of the Murrumbidgee and Goulburn Valley irrigation projects will suffice.

The Burrenjuck Reservoir (started in 1912 and completed last year, but largely in use several years) conserves and regulates the flow of the Murrumbidgee. About 250 miles below water is diverted from the river by gravitation to the main canal supplying the irrigation area.

The dam, the complete irrigation system, and land acquired for settlement were all paid for by the State of New South Wales. A great part of the buildings on the area were paid for and are managed by the State. These all represent at present a capital investment of $41,283,184, of which the Federal Government has made a contribution toward cost of soldier settlements of $1,250,527. This whole Murrumbidgee enterprise is treated as an industrial undertaking and while it produced from water rates and otherwise $522,122 over working expenses in 1928–29, the interest amounted to $1,906,097, showing a net loss of $1,383,975. This included a loss on the State cannery of $137,167 (interest and depreciation charges).

This is a somewhat better showing than the previous year, with regard to which the commission studying the industry stated:

> If the water rates in New South Wales were based on the actual cost of maintenance and interest as shown, including interest on a proportion of headworks, the present rate would have to be multiplied by 3.2, which would mean that the rate of $2.43 per acre-foot on horticultural holdings served by gravitation would become $7.78 per acre-foot, and that all other rates would have to be increased proportionately. If the interest on headworks were omitted, the rate of $2.43 per acre-foot would have to be increased to $5.67 per acre-foot, and all other rates would have to be multiplied by 2.333.

In fairness to the Water Conservation and Irrigation Commission, it should be said that construction of dam irrigation project and cannery were made largely during a period of very high cost during and soon after the war. Though the irrigation commission has been bringing the proposed area under irrigation as rapidly as possible, only about 40 per cent of available water is being utilized at present, and of course present areas developed are being charged with total interest of project

In Victoria the Goulburn Valley irrigation operations are not treated as a separate industrial undertaking, and consequently it would be more difficult to present a concise financial picture of that area's operations Victoria altogether has a total loan expenditure of $109,603,725 on works for water supply, on which annual interest charges for the year 1928–29 were $4,908,608 Much of this expenditure is on uncompleted works or otherwise not in a position to yield revenue to cover the interest charges However, $2,620,086 of this interest accrued on works now in a position to make proper contribution, and such works returned $1,802,844 last year

The above comprehensive view of Victorian waterworks is not particularly pertinent in consideration of the Goulburn area, since it is but a part The position there is put concisely, however, by the Migration Commission, as follows

> In the Goulburn Valley, Victoria, the rate charged by the State Rivers and Water Supply Commission is $1 46 per acre foot, whereas, according to advice from that commission, a charge of approximately $2 43 per acre foot would be necessary to meet all these costs An important point in connection with this charge is that the State Rivers and Water Supply Commission of Victoria is debarred by legislation from charging more than 4 per cent interest on all capital expended on works of supply for irrigation purposes, whereas the average interest paid on the loan liability of the Commission, as indicated in a report of the Victorian Parliamentary Committee of Public Accounts, dated November 20, 1928, is 4 72 per cent, and will probably increase when existing loans have to be repaid

The land under irrigated culture in 1929 was 471,695 acres in Victoria, of which the Goulburn schemes comprised 245,658 acres Land under vineyards, orchards, and gardens accounted for 21,700 acres of the Goulburn scheme, and of this canning varieties of fruits account for slightly over 9,000 acres, yet the Goulburn Valley comprises over 50 per cent of all Australian canned tree fruits This will indicate that further extensions are not dependent on further extensions of irrigation

The Goulburn Valley obtains water for irrigation from the Goulburn River, a tributary of the Murray A great part of the water is diverted direct at the Goulburn weir The Sugarloaf Reservoir has just been completed, a considerable distance further up stream, to conserve and regulate water, and another large reservoir, the Waranga, is incorporated in the scheme

IRRIGATION AND SOIL PROBLEMS

In considering the principal irrigation systems in which canning fruits are produced, mention should be made of some of the irrigation and soil problems

In New South Wales, around Leeton and Griffith, soil on which fruits are being produced apparently ranges from 12 to 22 inches deep, with exceptions both ways, and it appears from observations of a number of tests that 14 to 16 inches of soil is rather typical

Experienced American orchardists who have visited the area report the existence of basically unsuitable soil conditions Underneath this soil is a hard pan, into which water seeps very slowly, and drainage through is practically impossible, since the hard pan extends to unknown depths The soil is rather loose, and it is difficult to avoid supersaturation at the top of the hard pan. "High water table" forms quickly, and because the hard pan contains a considerable amount of salts, alkali soil conditions must continually be guarded against. Tree roots of canning fruits scarcely penetrate the hardpan to an important extent, which is a difficulty owing to the shallow soil. A proper drainage of irrigation water would assist greatly in overcoming the difficulty, but the land for the most part is almost flat, and there is no satisfactory way to drain, except by expensive pumping schemes, which are receiving some consideration. (Sir John Russell, who some time ago visited Australia, stated in a recent book on soils that overhead sprinkler systems of soil irrigation may yet prove the only safe way of treating some of the Australian soils.) It is said that some of the soils in the area not now planted to tree fruits are more suitable than those now utilized.

The accepted geological theory is that the Murray Basin, including the Murrumbidgee, were prehistorically ocean bed, and this is said to account for soil peculiarities, including salt contents.

In the Goulburn area soil problems also occur, but they are not the same, owing to the fact that the soil above hard pan is slightly thicker and is heavy and inclined to become hard. Difficulty occurs in getting the water into the soil. Contour gives satisfactory drainage facilities and adequate drainage has largely been constructed. Nevertheless, seepage difficulties occur, and some small areas have gone out of production, as a result.

CANNED TREE FRUITS

The production, consumption, and export of canned tree fruits follows:

AUSTRALIAN PRODUCTION, CONSUMPTION, AND EXPORT OF CANNED TREE FRUITS

[On basis of cases of 24-30 ounce cans]

Year	Production	Exports by country of destination						Available for Australian consumption [1]
		United Kingdom	New Zealand	Canada	East	Others	Total	
APRICOTS								
1923-24	136,420	35,560	28,130		358	320	64,668	71,752
1924-25	207,500	95,000	20,000		1,922	1,072	117,994	89,506
1925-26	135,675	12,900	22,680		2,333	3,098	41,011	94,664
1926-27	174,176	30	26,247	1,014	420	655	28,366	145 810
1927-28	248,790	58,229	22,838	2,276	1 442	1,015	85,800	162,990
PEACHES								
1923-24	479,051	38 903	44,196		722	1,378	85,199	393,852
1924-25	643 900	132,500	31,000		3,675	1,177	168,352	475 548
1925-26	758,999	153,000	53,500		5,782	8,102	220,384	538,615
1926-27	621,360	46,444	52,000	4,036	1,549	1,552	105,581	515,779
1927-28	982,938	285,644	43,258	20,426	3,370	1,924	354,622	628,316
PEARS								
1923-24	245 674	119,870	5,848		506	296	126,520	119,154
1924-25	284,000	137,000	4,500		2,577	738	144,815	139,185
1925-26	229,000	24,000	4,950		4,179	596	33,725	195,275
1926-27	171,780	37	3,488	84	1 380	1,212	6,201	165,579
1927-28	394,615	87,940	3,294	1,876	2,276	1,358	96,744	297,871
TOTAL								
1923-24	861,145	194,633	78,174		1,586	1,994	276,387	584,758
1924-25	1,135 400	364,500	55,500		8,174	2,987	431,161	704,239
1925-26	1,123 674	189,900	81 130		12 294	11 796	295,120	828,554
1926-27	967 316	46,511	81,735	5,134	3,349	3,419	140,148	827,168
1927-28	1,626,343	431,813	69,390	24,578	7,088	4,297	537,166	1,089,177

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[1] The quantities set out in this column in respect to the serveral years were not necessarily consumed in the individual years indicated, but figures are not available to show precisely, in respect of each year, the quantities consumed and carried forward, respectively.

PRODUCTION STATISTICS

The following table gives the production of the 1928 and 1929 seasons, by States

PRODUCTION IN 1928 AND 1929, BY STATES

[Cases of 24–30 ounce cans]

State	Apricots		Peaches		Pears		Total	
	1928	1929	1928	1929	1928	1929	1928	1929
Victoria	149,716	163 299	718 039	471,496	247,799	194,184	1,115,554	828,979
New South Wales	41,538	23,000	246,636	179,727	28,905	43,114	317,079	245,841
South Australia	7,409	8,845	18,263	11,704	63,688	20,231	89,360	40,780
Tasmania	50 127	42,336	---	---	54,223	28,544	104,350	70,880
Total	248,790	237,480	982,938	662,927	394,615	286,073	1,626,343	1,186 480

STATISTICS OF THE 1929 SEASON

Exports of the 1929 season up to January 1, 1930, in cases of 24–30-ounce cans totaled 513,283, comprising apricots, 121,578, peaches, 307,717, pears, 83,988

AUSTRALIAN EXPORTS BY DESTINATIONS TO JUNE 30, 1929

[Cases of 24–30 ounce cans]

Country of destination	Apricots	Peaches	Pears	Total
United Kingdom	68,044	132,060	54,931	255,036
New Zealand	6,157	16,852	499	23,508
Canada	1,873	16,308	952	19,133
The East	336	669	624	1,629
Other countries	320	470	327	1,116
Total	76,730	166,359	57,333	300,422

A general statement of the 1929 canned fruit up to January 1, 1930, follows Stocks of canned apricots, peaches, and pears in Australia carried over into the 1930 season were as follows

AUSTRALIAN STOCKS, JANUARY 1, 1930

Class of fruit	Cases of 48 16 ounce cans	Cases of 24 21-ounce cans	Cases of 24 30 ounce cans	Miscellaneous sizes cases of 24
Apricots	1,281	122	57,787	5
Peaches				
Halves	3,003	---	52,957	32
Sliced	1,188	---	7 549	4
Pears	6,044	---	64 031	4
Total	11,516	122	182,324	45

It is estimated that the consumption of canned apricots, peaches, and pears in Australia during the year 1929 was 1,010,130 cases of 24–30-ounce cans, or approximately 4 cans per capita

ESTIMATED CONSUMPTION IN 1929

[Cases of 24-30 ounce cans]

Item	Apricots	Peaches	Pears	Total
Carry-over stocks as of Dec. 31, 1928	72,190	399,571	59,232	530,994
Plus quantity processed 1929 season	237,480	662,928	286,074	1,186,482
Quantity available in 1929	309,670	1,062,499	345,306	1,717,476
Less exports during 1929	121,578	307,767	83,988	513,283
Less carry-over stocks as of Dec. 31, 1929	59,169	64,808	70,086	194,063
Estimated consumption during 1929	128,923	689,974	191,232	1,010,130

Exports in 1929 nearly equaled those of 1928, despite the decreased crop. This was caused by the very heavy carry-over of the previous season.

OUTLOOK FOR PRODUCTION IN 1930–31 SEASON

It will be seen from the foregoing that by the time the new season's pack becomes available, stocks in Australia should be practically exhausted, on the basis of yearly consumption.

It is at present being estimated roughly by the trade that the coming pack will reach the record year of 1927–28 of 1,620,000 cases of 24 tins.

The superintendents of 4 canneries (3 in Goulburn Valley and 1 in Murrumbidgee) estimate that they will process a total of 2,330 short tons of apricots, 18,984 of peaches, and 3,026 of pears.

In Australia, from estimates supplied, 1 short ton of apricots produces 59.8 to 63.4 cases of 24–30-ounce cans; 1 ton peaches, 40.2 to 49.1 cases of 24–30-ounce cans; 1 ton pears, 35.7 to 41.9 cases of 24–30-ounce cans.

In reckoning, an average has been taken: 61.6 for apricots, 44.6 for peaches, and 38.8 for pears. This formula applied to tons processed and final pack gives very close results.

The four canneries estimating pack about 60 per cent of the total Australian production of these fruits.

The pack of 1927–28 cases of 24–30-ounce cans was produced as follows:

THE 1927–28 PACK OF AUSTRALIAN CANNERIES

Cannery	Cases of 24–30-ounce tins	Percentage of pack
Ardmona	287,057	17.7
Kyabram	180,854	11.1
Shepparton	365,383	22.5
New South Wales Government factory, Leeton	152,777	9.4
Total	986,071	60.8
South Australian Cooperative Co.		
Adelaide	39,140	2.4
Proprietary companies—		
6 in Victoria	282,259	17.4
4 in New South Wales	160,052	9.9
3 in South Australia	50,220	3.1
2 in Tasmania	104,350	6.4
Grand total	1,622,092	100.0

It would appear that the record of 1927–28 may be slightly exceeded This will depend in an important way on whether or not the Leeton cannery actually processes the tonnage of peaches they have contracted for They have already finished processing the apricots Previously, Leeton has processed under 2,800 short tons of peaches annually

Only one indication was noted that would point to relative production of private canneries, but with stocks in Australia practically exhausted, no stocks of any importance in London, and fruit conditions in Australia similar to those in 1927–28, it would not seem that the variation from production would throw calculations out greatly, in view of lesser importance of such canning Griffith, near Leeton, ships fruit to Sydney canners

FRUIT PRODUCTION FOR CANNERIES

In New South Wales some quantities of canning varieties of fruit are grown outside the Murrumbidgee area, but they appear to have little importance to the canning industry at present

The four canneries in Sydney draw their fruit from the Griffith area of the Murrumbidgee practically exclusively—to the extent of 392 short tons of apricots in 1928 and 3,136 tons of peaches, equivalent to 164,150 cases of 24–30 ounce tins, according to the conversion formula given Actual statistics of production of fruits mentioned at these canneries that year were 160,052 cases From this it will be seen that that method of estimating controls over 70 per cent of the total pack, including all of New South Wales

MURRUMBIDGEE AREA PLANTINGS

Fruit	1926		1928	
	Bearing	Young	Bearing	Young
Pears (Williams)	14,455	5,848	15,903	2,620
Peaches (canning)	168,230	65,190	160,682	77,780
Peaches (other than canning)	41,523	15,511	31,081	4,460
Apricots	86,462	40,952	104,988	8,315

On the whole, canning fruit plantings in the area have declined somewhat, except peaches, and those of young pear and apricot trees show a decided decrease

MURRUMBIDGEE AREA GRIFFITH AND LEETON

The Murrumbidgee is divided into two main centers—one around Griffith, the other around Leeton At Griffith construction of a cannery was started and abandoned Shipments of fresh fruits are made to Sydney for canning and growers receive a somewhat lower price than at Leeton, where the State cannery exists Consequently, decline in production of such fruits is more noticeable

A local authority has expressed the following opinion regarding the Griffith area

> With regard to peaches, two years ago the acreage on the Griffith area (which includes Yenda) was 896 This has now been reduced to 642 acres, of which I

would say not more than 500 acres are effective. Practically no new planting has been done, and quite a number of trees are now past their prime, and production should continually decline. The average yield per acre is under 4 tons, but this is largely brought about by trees being on poor soil and by growers whose methods are at the best indifferent. The average from growers who are skilled would be from 6.7 to 7.8 short tons per acre. Regarding apricots, the situation is practically the same. The production of canning pears is very small.

All of the other fruits grown on the Murrumbidgee area, so far as they are used for canning, are processed at the State-owned cannery at Leeton. The amounts processed and acreages from which they are drawn do not show with any exactness the real production or acreages. Variations are caused by ability of cannery to process during the short season, and other factors. Often large quantities have to be dried, though the return to growers is only a fraction of the price obtained from the cannery. Often large quantities are left to rot, rather than to handle fruit at drying prices, and often quantities are shipped to Sydney. As a matter of fact, fruit production and acreages over the period given below have been relatively constant.

FRUIT PROCESSED AT LEETON CANNERY

Season	Apricots		Peaches		Pears	
	Short tons	*Acres*	*Short tons*	*Acres*	*Short tons*	*Acres*
1924-25	688	224	1,808	345	216	57
1925-26	732	427	2,576	826	46	93
1926-27	644	336	996	518	22	50
1927-28	641	278	2,447	549	139	38
1928-29	395	385	1,936	1,150	96	53
1929-30	818	364	[1] 5,208	1,082	[1] 282	54

[1] Contracted for.

VICTORIA GOULBURN VALLEY

In 1926 total acreages of canning varieties of fruits in Victoria were as follows:

ACREAGES OF CANNING VARIETIES OF FRUITS IN VICTORIA

Variety	Bearing	Nonbearing	Total
Peaches	4,389	967	5,356
Pears	3,487	789	4,276
Apricots	2,983	537	3,520
Total	10,859	2,293	13,152

The acreage planted in the Goulburn Valley, the principal producing area in Victoria, was as follows:

ACREAGE PLANTED IN THE GOULBURN VALLEY

Variety	Bearing	Nonbearing	Total
Peaches	4,056	871	4,927
Pears	1,669	618	2,287
Apricots	1,656	168	1,824
Total	7,381	1,657	9,038

The Victorian Department of Agriculture has just released the census of all fruit trees for 1929, but without classification as to canning varieties This census shows a decrease of totals of apricots and pears, but a fairly important increase of peach plantings

CENSUS OF FRUIT TREES IN VICTORIA

	1922-23		1925-26		1928-29[1]	
	Bearing	Nonbearing	Bearing	Nonbearing	Bearing	Nonbearing
Pears	729,775	360,403	803,344	246,311	814,847	200,517
Peaches	778,650	341,485	876,635	223,363	926,060	270,587
Apricots	349,242	130,114	397,402	67,532	406,864	51,628
Total	1,857,667	832,002	2,077,381	537,206	2,147,771	522,732

[1] Number of trees collected triennially

Most of the trees in the Goulburn Valley produce fruits of the canning variety The number of trees in 1926 and 1929, respectively, follows Apricots, 244,672 and 249,991, peaches, 730,316 and 792,742, pears, 282,676 and 338,369

SOUTH AUSTRALIA

South Australia only accounts for about 5½ per cent of Australian canned fruit production There is no particular area of fruit growing for canning and no important production of canning varieties of fruit as such

The production or acreages of peaches, apricots, and pears appears to show no particular tendency, except a slight reduction in peaches.

ACREAGES NOT INCREASING

It appears that on the whole there is no tendency toward increasing acreages of canning fruits

In New South Wales there is a fairly noticeable reduction and conditions do not appear auspicious for any expansion In Victoria it is commonly stated that increases have been halted The commissioner of irrigation states definitely that the State will give no new financial assistance for extensions Nevertheless, some of the efficient growers who have good soil find production profitable, and there appears to be some extensions by such growers, which about compensates for the elimination of the poorer producer Consequently, a slight improvement might be expected in yields This to a degree applies to New South Wales also The following resolution was passed by a joint conference of cooperative canners and growers at Shepparton on May 28, 1928

> That in view of the statistical position, this conference recommends that no further plantings of canning varieties be made for two years, when the matter can again be reviewed

VARIETIES OF FRUITS PLANTED IN VICTORIA AND NEW SOUTH WALES

Peaches and pears particularly are sold to a very large extent fresh The following table includes varieties for all purposes

FRUIT TREES IN VICTORIA

Kind and variety	Trees of bearing age	Young trees not bearing
Apricots		
Moorpark	195, 679	29, 486
Oullin's Early	46, 412	4 979
Mansfield	41, 338	6, 136
Other	113 973	26, 931
Total	397, 402	67, 532
Peaches		
Pullar's Cling	237, 914	31, 081
Elberta	65, 595	2, 771
Brigg's Red May	55, 778	11, 587
Hales' Early	56 856	10, 188
Nicholls' Orange Cling	61, 246	2, 402
Peaches—Continued		
Goodman's Choice	44, 955	12, 590
Other	354, 291	151, 714
Total	876, 635	222, 333
Pears		
Williams (Bartlett)	376, 609	85, 222
Beurre Bosc	80, 168	32, 500
Packham's Triumph	55, 112	46, 608
Kieffer	51, 324	9, 104
Josephine de Malines	38, 891	17, 740
Other	201, 240	56, 167
Total	803, 344	247, 341

FRUITS IN NEW SOUTH WALES

Variety	Acres		Approximate production		Number of growers	
	1926	1927	1926	1927	1926	1927
			Short tons	*Short tons*		
Pears						
Williams (Bartlett)	218	206	165	332	312	302
Keiffer	22	10½	11	27	48	23
All other varieties	116	101	63	114	178	163
Total	356	317½	239	473	538	488
Peaches						
Elberta	403	431	1, 138	1, 440	340	346
Golden Queen	493	466	878	1, 354	268	236
Goodman's Choice	133	138	43	147	92	72
Lady Palmerston	22	21	42	83	40	39
Lewis Cling	167	147	41	128	107	90
Pelora	132	154	62	21	61	58
Phillips Cling	280	215	245	383	127	102
Pullars Cling	945	1, 021	2, 727	3, 296	416	385
Salwey	22	21	34	55	26	21
Sims Cling	120	119	30	194	80	87
Selma Cling	125	136	12	62	59	63
Thiele's Cling	25	21	46	109	12	14
Tuscan	48	29	19	36	30	20
All other varieties	128	129	169	238	113	115
Total	3 043	3, 048	5, 486	7, 546	1, 771	1, 648
Apricots						
Mansfield	91	74	290	194	92	86
Moorepark	127	124	435	368	135	134
Trevatt	1, 090	1, 032	3, 028	2, 661	668	609
All other varieties	36	28	96	78	66	55
Total	1, 344	1, 258	3, 849	3, 301	961	884

NOTE —Totals for 1925 acreage and approximate production (short tons) were, respectively Pears, 290 and 371, peaches, 2,354 and 7,109, apricots, 1,133 and 3,360

YIELDS PER ACRE

One important disability that the canning industry in Australia suffers in comparison with the American industry is relatively low yields per acre, and inasmuch as costs per acre are very similar, whether small or large yields are obtained, this becomes serious, because Australian costs generally are very high

Some time ago a committee acting for the New South Wales Land Valuation Court made a detailed investigation, and its reports have been generally accepted, as follows

AVERAGE YIELDS PER ACRE AS AGREED UPON IN MURRUMBIDGEE IRRIGATION AREA

[Short tons]

Fruit	First-class soils	Upper second class	Medium second class	Lower second class
Apricots (Trevatts)	6 2	5 6	5 0	3 9
Peaches				
Pullar's Cling	9 0	7 8	7 3	5 0
Golden Queen	6 2	5 6	5 0	3 9
Other intermediate, except Tuscan	5 6	5 0	4 5	3 4
Goodman's Choice	6 2	5 6	5 0	3 4
Early varieties	5 6	5 0	4 5	3 4
Elbertas	9 0	7 5	7 3	4 5
Pears	6 7	6 7	5 6	4 5

NOTE —Third class nothing, except 4 5 for pears

The conservation and irrigation commission states that 40 per cent of the soils are in the lower grades, 50 per cent medium, and only 10 per cent in the two upper classes

In the Goulburn Valley the growers' association compiled statistics of fruits processed or shipped for two years and found marketed production as follows, in short tons per acre Peaches 4 5, pears 4 2, and apricots 2 2 In heavy production years some quantities of course are not marketed

The Victorian Department of Agriculture estimate for the Goulburn Valley is as follows

	Short tons
Apricots	
Moore Park	2 2– 2 8
Trevatt	4 5– 5 6
Tilton	3 4– 4 5
Other varieties	2 2– 3 4
Peaches	
Pullar s Cling	9 0–11 2
Goodman's Choice	4 5– 6 7
Golden Queen	3 4– 4 5
Other varieties	2 2– 4 5
Pears	4 5– 6 7

South Australia and Tasmania produce no canning varieties as such and pack only 12 per cent of the total No satisfactory yields are available

It is commonly understood that fruit trees in area mentioned are shorter lived than in the United States

COSTS OF PRODUCTION

Australian fruit producers have for many years been receiving, as a rule, from $43 to $52 per short ton for all canning fruits It is contended that costs plus a moderate standard of living make these prices necessary The Markets and Migration Commission, which made a thorough investigation of the canned-fruit industry last year, stated

> There are many variable factors, but the commission believes that under present circumstances, and pending increases of average yields throughout the areas and reduction of costs of production, any price lower than $41 28 per ton (averaged over tonnage of the three fruits as shown in the tables), at country cannery or railway siding, will not enable the grower to live at all reasonably and meet his due obligations

As mentioned, the state governments have not only paid for the irrigation, but have largely advanced the settlers funds to develop their holdings The commission above mentioned, has given the following table as typical of bringing a block into bearing A 30-acre block, with 25 acres planted, has been taken to show the cost of production of fruit for canning

Land at $70 58 per acre (30 acres)	$2, 117 40
House and outbuildings	1, 995 47
Fencing, 45 chains at $3 65 per chain	164 25
Clearing up land and preparing for planting, $14 60 per acre (25 acres)	365 00
Trees 100 per acre, at $19 47 per 100	486 75
Preparing trees for planting $2 43 per 100	60 75
Planting, $4 37 per acre (contract rate)	109 25
Nursing planted area over 5 years, $730 05 for first year, $973 40 for the second year, and $1,216 75 for each of the 3 remaining years	5, 353 70
Implements, plant and horses (as per list)	2, 467 57
Shire rates, $24 34 per annum for 5 years	121 70
Interest over 5 years (estimated)	1, 946 80
	15, 188 64

This is equivalent to $506 28 per acre

The commission states that the yearly cost of such a block of 30 acres, 25 acres planted and in bearing, would total $2,387 75

Although undoubtedly Australia suffers considerable handicap in the production costs, the low average yields are an important factor Often also in good seasons canneries are unable to take all production, and a portion spoils, or driving prices must be accepted

However, the more efficient growers with better quality soils can produce much cheaper than prices indicated The manager of one cannery remarked that many of the better placed producers would manage to survive on $26 07 to $30 42 per short ton

Growers are certain to make costs appear high, owing to the fact that the State and Federal Governments by such claims have been induced to spend large sums in subsidies in one form or another

Nevertheless, the fact remains that if production was particularly profitable, production would tend to increase—and there are indications that instead there is a slight tendency to decrease

CANNING AND CANNING COSTS

Twenty canneries in Australia process peaches, apricots, and pears Before 1917 practically all canning was performed by private companies, but after the Government had induced heavy plantings under its closer settlement schemes it was suddenly realized in the Goulburn area that canneries would have to be built, and in 1918 and 1921 two cooperative canneries were built at Shepparton and at Kyabram A cooperative dehydration plant was built at Mooroapna in 1921 and this company—the Ardmona Fruit Products Cooperative Co —installed canning machinery The New South Wales Government constructed a cannery at Leeton in the Murrumbidgee area in 1914 and commenced construction of one at Griffith The Griffith cannery has been abandoned, but that at Leeton was remodeled in 1917 A cooperative cannery was also built at Adelaide, South Australia

Directly or indirectly as a result of State policies, six canning factories were built in Australia between 1917 and 1926—giving incidentally a good market for American canning machinery It is very unlikely that further increases will take place in the near future, though some additions and balancing of plant equipment is to be expected

The introduction of six new canneries through State activities naturally caused a bitter feeling on the part of the private companies, which had always been able to sell practically all their products on the home market With the new canneries exports became necessary, yet the private companies still export practically nothing The new companies were desirous of obtaining a share of the home market, since prices realized are higher than for export The result has been war between the cooperative and Government canneries on one side, and the private companies on the other, continuing up to the present time

The markets and migration commission last year compiled a table showing something like canning costs of the cooperative and Government canneries Costs per dozen of processing canned peaches, pears, and apricots were calculated on basis of 43 45 per short ton for fruit, 59 8 cases of apricots, 49 1 cases of peaches, and 40 2 cases of pears per ton of fruit

AUSTRALIAN CANNING COSTS

Item	Apricots		Peaches		Pears	
	Cost per case of 24-30 ounce tins	Percentage of f o b cost	Cost per case of 24-30 ounce tins	Percentage of f o b cost	Cost per case of 24-30 ounce tins	Percentage of f o b cost
Fruit	$0 716	19 41	$0 878	24 39	$1 054	26 86
Cans	706	19 14	706	19 61	688	17 53
Sugar for sirup	486	13 18	320	8 89	320	8 16
Labor	494	13 39	394	10 95	572	14 58
Caustic	---	---	016	45	---	---
Fuel, steam, oil, etc	028	76	028	78	030	76
Other sundries	040	1 09	040	1 10	040	1 02
Spoilage (one half per cent)	012	33	012	33	014	36
Prime cost into stock	2 482	67 30	2 394	66 50	2 718	69 27
Cases, 26 cents, labels, 9 cents, labeling, casing, strapping, etc , 10 cents, rail freight and handling charges, 9 cents	540	14 64	540	15 00	540	13 76
Overhead	666	18 06	666	18 50	666	16 97
Cost f o b	3 688	100 00	3 600	100 00	3 924	100 00

NOTE —On export sales there is a control board levy, which at present is 4 cents per case As against this, sugar and case rebates (totaling 18 cents per case, in February, 1929) are allowed on exports, so that the cost of export fruit to f o b would be 14 cents per case less than the figure shown above

Rail freight on fruit sold in Victoria is up to 8 cents per case more than the amount charged in this statement owing to the fact that fruit for shipment overseas is carried on the railways at a lower rate

The rail freight and handling charges shown in this statement are based on the Victorian costs

Metropolitan canneries would have to pay freight on the fruit to the cities, but as against this they would have no inward and outward rail freight on materials, nor outward rail freight on the manufactured goods, but would have to pay cartage charges

Since the foregoing table was prepared a further customs tariff increase has been levied on cases, but a drawback is allowed on exports Ocean freights have been averaging about 40 cents per case to Great Britain Total of above costs scarcely apply to Leeton, as will be mentioned later There the interest and depreciation charges alone amount to approximately $1 per case, and, in addition, there are other overhead charges

One reason for the high capitalization of Australian canners is the high customs duties, which levy 60 per cent duty on imported American canning machinery

If we deduct drawback from prime costs previously given, and then add other approximate export items listed below, a rough idea will be given of prices that should be received to clear costs Conversely, if London realization prices are known, rough deduction could be made of prices canners could pay to fruit producers without export subsides

Item	Apricots	Peaches	Pears
Prime costs	$3 688	$3 60	$3 924
Less drawback	140	14	140
Remainder	3 548	3 46	3 784
Expenses between landed prices, England and Australian quotations—England	580	58	620
Ocean freight, about	380	38	380
Total	4 508	4.42	4 784

A list has already been given showing the relative production of the cooperative and State canneries to the private canneries

The most successful of the new canneries and the largest producer is the Shepparton cannery It is now independent of State assistance, has built up good reserves, and is making very substantial yearly profits It has an excellent can-making department and a substantial part of its yearly profits are derived from selling cans to the two other canneries in the Goulburn Valley

The Ardmona and Kyabram canneries have been less successful financially, and have important accumulated losses, the auditor general's statement for 1928 indicates that the State of Victoria was guaranteeing their overdrafts for $2,430,000

The New South Wales Government cannery at Leeton is in the worst position of all, and with its many disabilities presents an unenviable problem to its managers This cannery during the year ended June 30, 1928, according to the report of the New South Wales Auditor-General, suffered a loss of $237,691 The capital employed at that date was $1,785,765, comprising fixed assets of $1,049,962 and stocks (average), $735,803 The report of the Auditor-General continues

> The interest charged in the accounts for the use of this capital was $91,599, and the amount added to the depreciation reserve was $43,723, so that, irrespective of these two amounts, there was a cash loss on trading of $102,369
>
> Since its inception at the beginning of 1914, the canneries at Leeton have contracted losses totaling $1,770,260, and from the figures taken from the yearly accounts this total is made up of $1,770,260, made up of depreciation, $483,816, interest on capital, $792,362, and cash loss $494,082
>
> The position is one of extreme gravity Only during the seasons affected by the Commonwealth Fruit Pool has the factory made a profit, the maximum

> amount for one year being $951 82 in 1924, while during the other periods the maximum loss was $560,798, in 1921 During the last three years the factory has lost $636,030, and the immediate future, under present conditions, does not appear to forecast any relief from what must be called continued disaster
>
> In the explanation of the loss, the executive states that a cannery can not pay the present fixed price for fresh fruit and sell at a profit The figures show that during the last three years the cannery would have contracted losses if the fresh fruit, vegetables, and pulp had been made a present to the factory

The results of 1928–29 season are considerably better, but with capitalization and disadvantages it would be difficult to show a profit Management of the Leeton cannery comes under the New South Wales Water Conservation and Irrigation Commission, and in its report covering the 1928–29 fiscal year the following statement is included

> While the fruit-canning industry is still in an unsatisfactory position, the trading results of the Leeton cannery were an improvement on the previous period There was a small surplus of $1,755 over working expenses, but as the interest amounted to $91,634 and depreciation charge was $47,118 (a total of $138,752), there was a net loss for the period of $136,997
>
> Probably the industry will never be in such a flourishing condition as to allow of the full interest charges being met, as this undertaking is admittedly over-capitalized The building was erected to meet the urgent needs of settlers during the war period (1917), and its machinery was also imported at that time The heavy capital outlay involves an interest charge in the vicinity of $97,000 per annum, and under present conditions no such profit can be expected

The plant was modern in 1917 Some of its disadvantages compared with, for instance, the Shepparton plant, which is much larger and much higher capitalized, are freight to port per ton, Shepparton $2 70, Leeton $6 16, wage costs are higher because a large number of employees must be brought from Sydney each year, dining and dormitory accommodation is provided and the loss on this item has been heavy, the wages and piecework rates are higher than in Victoria, ordinary working hours are 44 per week against 48 in Victoria It is much more difficult to set up strict grades on fruit delivered by growers since it is a State institution

GRADING OF CANNED FRUIT

Australian fruit growers do not thin out fruit on trees during growing period, consequently they obtain very little large fruit Almost all Australian fruit is packed in 30-ounce tins

For practical purposes, it may be said that only "standard" grades are packed Fancy, choice, and seconds are packed in very small quantities

Fruit for export is inspected under export regulations of the Commonwealth Government, and it is now said that the quality of the export pack has greatly improved and compares favorably with the standard California grade Nevertheless Australian canned fruit continues to obtain a lower price in London than the American product

Canned fruits packed for domestic consumption are not included in such grading, but are left to standards set up by each factory The great disadvantage of this is that such goods can not be exported—which obviously is going to cause embarrassment when there are over supplies on the domestic market

A table has already been given showing the amounts of canned fruit consumed in Australia yearly, and also the total exports by the more important oversea markets Local consumption by aggressive advertising has in recent years been increased from about 750,000 cases of 24–30-ounce cans, to slightly over 1,000,000, or about 4 cans annually per capita Then, according to the production of the last two years and outlook for this season, something over 500,000 are left for export, leaving 33 per cent or more of the total production that must be exported

The following table is about typical of the three years.

EXPORT OF CANNED APRICOTS, PEACHES AND PEARS, 1928 SEASON

[Cases of 24–30-ounce cans]

Country of destination	Apricots	Peaches	Pears	Total
United Kingdom	58, 228	285, 644	87, 940	431, 812
New Zealand	22, 838	43, 258	3, 294	69, 390
Canada	2, 277	20, 426	1, 876	24, 579
The East	1, 442	3, 370	2, 271	7, 083
Other countries	1, 025	1, 924	1, 358	4, 297
Total	85, 800	354, 622	96, 739	537, 161

Canned fruit sold on the Australian market returns from 12 cents to 36 cents per dozen more than for export A still higher price for local consumption would be charged if agreement could be reached by the private, cooperative, and State canneries The private companies, which were first in the field, refuse to accept an export quota basis covering all production, consequently, the Leeton cannery, together with the cooperatives, exports over 90 per cent of the total This cannery and the cooperatives are, therefore, able to share in the local market to the extent of only about 40 to 50 per cent of their production, some of them getting a larger percentage of the business than others The private companies had built up good will over a long period, their brands are well known, and they are in a favored position in the fight for the local market

The cooperative canneries and the New South Wales Government cannery, almost since their inception, have borne the bulk of the export burden As an indication of the position the 1927–28 figures may be quoted

Item	Cases of 24–30 ounce tins	Per cent
Total pack (30-ounce cans only)	1, 622, 093	100 00
Export to the United Kingdom	429, 312	26 47
Exports to the United Kingdom by cooperative section and Government cannery	396, 807	92 43
Exports to the United Kingdom by proprietary section	32 505	7 57
Total exports to the United Kingdom	429, 312	100 00

During this past season the cooperative and State-owned canneries exported about 97 per cent of the total.

OVERSEA MARKETS

Great Britain buys from 80 per cent to 90 per cent of Australia's total exports of canned fruits.

BRITISH CANNED FRUIT IMPORTS

[Pounds]

Country of origin	1924	1925	1926	1927	1928
United States	145,225,024	169,355,872	157,350,592	154,039,760	190,477,280
Spain	995,456	1,082,368	1,756,944	559,328	402,304
Italy	3,887,184	4,112,640	6,719,776	5,121,200	4,631,200
Other foreign countries	1,654,576	2,194,752	1,716,736	1,954,624	2,426,704
Australia	11,530,288	17,216,304	10,695,776	2,150,512	19,600,448
Canada	2,266,544	5,144,720	3,766,224	3,047,968	2,792,608
South Africa	417,200	426,944	198,352	220,192	932,624
Other British countries	51,856	84,000	65,856	314,048	385,392
Total	166,028,128	199,617,600	182,270,256	167,407,632	221,648,560

PERCENTAGE SUPPLIED BY THE UNITED STATES AND AUSTRALIA

Country	1922	1923	1924	1925	1926	1927	1928
United States	87.15	89.83	87.47	84.84	86.33	92.01	85.94
Australia	7.81	5.19	6.94	8.62	5.87	1.28	8.84

For 1928–29 (1930 outlook) Australia obtained a much more important percentage of the English business.

There is no Imperial preference in favor of Australia on canned fruits. A slight advantage is gained for the Australian sugar industry through the preference given Australian sugar, because canned fruit is sweetened, but this is of no material benefit to the canned fruit industry. Australian canned fruits still continue to obtain slightly less on the English market than Californian fruits.

Of the total 1928 shipments to England, only 10.6 per cent was sent to ports other than London. However, an attempt is being made to exploit these markets more, and early shipments of the 1929 pack show 20 per cent to such ports.

New Zealand gives tariff duties preference to Australian canned fruit as follows: Foreign, 45 per cent ad valorem, Australian, 35 per cent ad valorem (on reciprocal treaty), other British, 25 per cent ad valorem.

Australian exports to New Zealand are fairly important. Nevertheless, American competition there is keenly felt. It is continually said that America is selling seconds at prices that are difficult for Australia to meet. In any event, there has been no important increase in Australian sales there during recent years, and possibly some ground has been lost.

Canada also gives a preference to Australian fruit. As a result, exports to Canada have increased quite rapidly, and the export control board states that it has under consideration an advertising campaign in Canada, inasmuch as the opportunities for increasing sales are promising.

Trade with the East is not very extensive, and the export control board in its last report makes no mention of these markets.

MARKETING ORGANIZATION OF THE AUSTRALIAN INDUSTRY

The organization of the Australian currant and raisin industry is elaborately complete and effective Attempt has been made to organize the canning industry on the same lines, but results achieved have been rather unsatisfactory, because unanimity can not be secured The attitude of the private canneries has been mentioned They are not inclined to share the home market on a basis of production with the cooperative and State canneries

A Federal act was passed in 1926 authorizing an export control board State control boards were to be formed, as in the dried-fruit industry but owing to the fact that the control board has not been able to allot export quotas, the State boards have not been formed

The Export Control Board consists of three members—one representing the State-controlled and cooperative canneries, one the private company canneries, and one the Federal Government

Though the State and cooperative canneries do practically all the exporting, a representative of the private companies has equal rights in controlling the export policy and oversea selling organization The board does not actually sell, but it does set minimum prices for the various varieties The board has a London representative, who from time to time confers with the agents selling Australian canned goods in England Income last year was $18,597, and $7,301 was spent on the joint Commonwealth trade publicity scheme, which advertises Australian products in England The Commonwealth Government makes contribution to this fund also

The London representative of the board has arranged for the empire marketing board to provide a limited amount of press advertising in support of Australian canned fruits

In addition to the export control board, there is a canners' association, which holds meetings at irregular intervals and fixes prices for the local market

SUMMARY OF THE CANNED-FRUIT SITUATION

Obviously, the crux of the whole canned-fruit situation and its future is financial

A feeling has grown that growers must receive $43 45 or more per short ton for their fresh fruit and this view was practically indorsed by the markets and migration department, which was delegated by the Federal Government to review the industry However, since Australia must sell its surplus overseas, and it is now an important surplus, it must meet world prices The home market in this case gives little premium

The industry pays more for fresh fruit and realizes smaller prices for the canned fruits than the industry does in America—particularly because standard grades are practically the only type packed

In addition to the above, costs of canning and shipping are considerably higher than in America

These factors place the Australian canners in a very difficult position, and they have continuously appealed to the Commonwealth Government for financial subsidies and have received altogether very large sums

On the other hand, there is no doubt that fruit growers and canners have exploited their position as much as possible to get such assistance Consequently, it is less easy to prophesy what the industry would do if left to its own resources During the season just now opening, the Federal Government is not subsidizing exports, owing to the fact that the Californian short crop of last year has helped the English market for Australia This is, however, an exceptional situation One recourse quite probably would be a further attempt to reach an agreement of canners regarding the local market and increase local prices, as is done in the case of dried fruits and other Australian products

During earlier years of Federal Government assistance under the fruit pool the industry received sufficient subsidies to be very prosperous, but such subsidies have been greatly reduced

Governmental finance, both State and Federal, is in a very unsatisfactory position at present All governments are striving for any possible economies Bankers and governmental treasurers themselves appear to believe that this situation is not likely to adjust itself for a considerable time It is, therefore, questionable whether Federal and State Governments will continue subsidizing the canned-fruit industry to any important degree during the next few years, except by remission of interest charges on works established with Government money, when such interest can not be earned

It would seem, then, that further important expansion of the canned-fruit industry is scarcely to be expected

VARIOUS SEASONS' OPERATIONS SUMMARIZED

The development and migration commission, in its inquiry, summarized Government marketing subsidies, and its report is quoted below

> In the seasons 1920–21, 1921–22, and 1922–23, the Commonwealth Government established what were termed fruit pools These in reality were not pools, as the Government shouldered all risks by purchasing, processing, and selling the fruit
>
> *Season 1920–21* —This pool handled apricots, peaches, pears, and pineapples for canning, and peaches, plums, and tomatoes for pulping Operations were carried out in Victoria and Queensland only The loss incurred by the Commonwealth Government on this pool amounted to $448,000
>
> *Season 1921–22* —All States, except Western Australia, were included in this pool The varieties of fruits canned were apricots, peaches, pears, pineapples, gooseberries, and plums, and apricots, plums, and gooseberries were also pulped The total quantity of fresh fruit handled by the pool was 16,365 short tons, and the output 477,500 cases of 24–30-ounce cans It should be noted that all canneries did not participate in this pool, and that the total Australian production was greater than 477,500 cases
>
> Sales on the Australian market were slow, and this resulted in a substantial carry-over of stocks both in Australia and the United Kingdom The loss on this pool was $1,742,000
>
> *Season 1922–23* —Factories in New South Wales, Victoria, South Australia, and Tasmania comprised this pool It processed 18,348 short tons of fresh fruit (apricots, peaches, and pears only), producing 753,500 cases of canned fruit, of which 200,000 were exported to the United Kingdom
>
> With an increased production and a large carry-over of stocks from the 1921–22 season, the prospects of disposing of this pack were not bright Therefore, with a view to clearing the local market, the Commonwealth Government reduced prices and introduced an advertising and publicity campaign throughout Australia, with the result that the consumption per head of population in Australia increased from one 30-ounce can per annum to three cans per annum, and all local stocks were quickly cleared As a result of reduced prices and special efforts, the remaining stocks already in the United Kingdom, together with the 1922–23 exports, were also sold The loss on this pool was $1,119,000

In connection with the 1921–22 and 1922–23 pools, the State governments concerned were asked to share one-half the losses on the pools, but, with the exception of the Queensland Government in 1921–22, they refused to do so

Season 1923–24 —The Government found that under the so-called pools the position of the industry generally was far from satisfactory and for 1923–24 decided to allow canners to operate on their own behalf A bounty on canned fruits produced, and an additional bounty on fruits exported, was given to canners, on condition that they operated their factories to fullest capacity, and paid the grower prices stipulated by the Government This scheme involved an expenditure of approximately $647,000 by the Commonwealth Government

The rates of bounty on production and (additional) on exports paid to canners on a 30-ounce tin basis were, respectively, as follows, in cents Apricots, 36 and 80, clingstone peaches, 48 and 84, freestone peaches, 40, pears, 36 and 72, pineapples, 24 and 48

The quantity of peaches, pears, and apricots produced was 861,144 cases of 24–30 ounce tins, of which 195,000 cases were exported to the United Kingdom

Season 1924–25 —The 1924–25 season's pack exceeded the 1923–24 output by over 250,000 cases With such a large quantity of fruit available, it was considered necessary to encourage exports, in order to relieve the local market and also to keep Australian fruits in active competition with Californian in the United Kingdom The Government decided to provide a subsidy on all clingstone peaches, apricots, and pineapples exported to the United Kingdom, the amount of subsidy being 48 cents, 36 cents, and 24 cents per case, respectively This subsidy, which totaled $60,317, was payable subject to evidence being produced that the grower received prescribed prices for the fruit

The season's production of apricots, peaches, and pears was 1,135,400 cases of 24–30-ounce tins, and the quantity exported to the United Kingdom was 364,500 cases

Season 1925–26 —The pack of 1,123,674 cases for 1925–26 was slightly less than that for the previous year, but the Commonwealth Government found it necessary to pay a subsidy on apricots and peaches exported to the United Kingdom The amount of the subsidy for this year was $81,036

Season 1926–27 —The pack for this season was just under 1,000,000 cases, but it was again found necessary to subsidize the export of fruit to the United Kingdom The assistance was limited to peaches exported, and as there was a very small export for the year the amount of subsidy paid was $28,165

Season 1927–28 —The pack for 1927–28 of 1,622,093 cases of 24–30-ounce tins constituted a record, and the Commonwealth Government again came to the assistance of the industry by paying a subsidy of 6 4 cents per case on peaches exported to the United Kingdom, subject to growers obtaining prescribed prices for their fruit The amount of subsidy payable under this arrangement was $208,079

The production of peaches, pears, and apricots in New South Wales and Victoria has been extended, mainly as a result of closer settlement schemes in conjunction with irrigation development in those States

DRYING OF APRICOTS, PEACHES, AND PEARS

Some quantities of canning fruits are dried For the most part, it appears that this is done to salvage such fruits as can not be handled fresh or canned Rates paid at present only yield about $13 per short ton for the fresh fruit

This industry is practically entirely a local one, exports being almost negligible

Inasmuch as Australian fruits are dried until quite hard, on a basis of about 7 tons fresh to 1 ton of dried fruit, they do not suit oversea markets particularly well.

AUSTRALIAN DRIED FRUITS PRODUCTION

[Pounds]

Year	Apples	Apricots	Peaches	Pears
1921-22	927, 380	972, 148	1, 045, 146	495, 884
1922-23	1, 304, 715	2, 101, 421	1, 649, 759	296, 123
1923-24	1, 028, 168	1, 169, 975	1, 000, 732	394, 230
1924-25	891, 727	1, 769, 591	949, 970	389, 718
1925-26	958, 354	1, 308, 495	778, 769	384, 218
1926-27	890, 854	1, 962, 513	577, 331	238, 808
1927-28	1, 520, 233	1, 479, 967	1, 306, 167	431, 048
1928-29	-----------	3, 360, 000	781, 760	344, 960

Australian prices are fixed by the Australian Dried Fruit Association and are high compared with London prices

Australian sugar prices are only high as a result of protection to that industry, but a drawback is granted on export canned fruit, consequently, it does not materially affect export prices or costs

U. S. DEPARTMENT OF COMMERCE
R. P. LAMONT, Secretary

BUREAU OF FOREIGN AND DOMESTIC COMMERCE
WILLIAM L. COOPER, Director

ITALIAN CHEMICAL DEVELOPMENTS IN 1928 AND 1929

Trade Information Bulletin No 705

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FOREWORD

During 1929 the Italian chemical industry attained a greater volume of production than in 1928, but the margin of profit was generally smaller The industry was still suffering from the effects of deflation, but now seems to be making slow but steady progress toward recovery The increase in the exchange value of the lira favored imports, while higher production costs within the country reacted adversely on the export trade Total production was estimated at 3,600,000 tons, a slight decline from the official 1927 figure of 3,674,000 tons but a decided gain over the 1928 estimate of 3,340,000 tons

The 1928–29 period was marked in the Italian chemical industry by consolidation and concentration The domestic cartel movement received added impetus, and agreements regarding production quotas, sales quotas, and price fixing were reached among producers of a wide range of chemicals Although international cartels are not generally represented in the industry, the Italian producers of tartaric acid, atmospheric nitrogen, rayon, and tanning extracts have foreign affiliations At the close of 1929 the chemical industry consisted of 829 registered companies with a declared capital of $138,000,000

During 1929 the imports of chemicals into Italy reached $48,585,000, the highest dollar value yet attained and a substantial increase over the 1927 value of $41,096,000 and the 1928 figure, $46,840,000 The peak of exports was reached in 1928, with $37,252,000, but the 1929 figure of $37,155,000 was only slightly lower The 1927 exports were $33,875,000. The United States furnished about 7 per cent of the imports and took about 10 per cent of the exports, the value of the interchange practically balancing Citrus oils and tartar products make up 70 per cent of our purchases from Italy, whereas phosphate rock and paint products account for 60 per cent of our sales There are indications that a more general market for American chemical products could be developed, especially in finished manufactured goods of the specialty type

This is the second report on the Italian chemical industry published by the bureau, the first having been released in September, 1928 Other bulletins have been issued on the chemical industries and trade of France, Germany, Great Britain, and Switzerland The Chemical Division of the Bureau of Foreign and Domestic Commerce will welcome inquiries from American firms for more specific information on any of the subjects covered in these bulletins

WILLIAM L COOPER, *Director*,
Bureau of Foreign and Domestic Commerce.

AUGUST, 1930.

ITALIAN CHEMICAL DEVELOPMENTS IN 1928 AND 1929

By **Elizabeth Humes**, American Trade Commissioner, Rome

GENERAL OBSERVATIONS

INDUSTRIAL CONDITIONS AND OUTSTANDING DEVELOPMENTS

As a result of the deflation policy initiated by the Fascist Government in the autumn of 1926, since early in 1927 the chemical industry in Italy has passed through the same phases of depression and gradual recovery which have been common to the entire economic life of the nation. The period of depression was most strongly marked in 1927. In 1928 numerous signs of recovery were manifested; 1929 was characterized, in the chemical as in other industries, as a year of a greater volume of business as compared with 1928 but reduced margins of profits.

These statements may be taken as referring to the chemical and allied industries as a whole. Generalizations in this field are, however, particularly misleading, and a true picture of conditions may be arrived at only by studying separately the individual branches. Nevertheless, when we consider the several elements which may serve as indexes of general conditions, it becomes evident that the industry as a whole is on the road to recovery, although the process is not yet complete and progress is slow. An improvement was noted in the fertilizer industry (particularly nitrogenous fertilizers), in heavy chemicals and acids, in pharmaceuticals and medicinal products, and in tartaric acid, whereas profits in the synthetic-dye industry were reduced, and the paint and varnish, caustic soda, citric acid, and essential oils industries labored under difficulties.

The following figures, compiled by the Italian Association of Stock Companies, show the number of registered corporations engaged in the manufacture of chemicals and allied products with their declared capital at the close of 1929 as compared with 1928 and 1927.

ITALIAN COMPANIES ENGAGED IN CHEMICAL PRODUCTION

Year	Companies	Declared capital	
		Lire	Dollars [1]
1929	829	2,637,285,000	137,930,000
1928	764	2,375,679,000	124,723,000
1927	732	2,221,992,000	113,099,000

[1] Conversion rates: 1927, lira=$0.0523; 1928, lira=$0.0525; 1929, lira=$0.0509.

During 1929, 107 new chemical companies were chartered, with a total capitalization of 24,242,500 lire, 41 companies, with a total capitalization of 23,142,000 lire, were dissolved. An indication of the unsatisfactory financial situation is furnished by the fact that of the 116 companies which increased their capital during the year by 294,552,000 lire many of them first reduced the capital by writing down the par value of the shares, at a considerable sacrifice to stockholders, and subsequently asked for new capital by a new issue of stock.

Last year the Italian Association of Stock Companies published figures showing declared capital, reserves, earnings, and dividends of 65 chemical companies, capitalized at over 1,000,000 lire each, for 1925 to 1928. Complete figures for 1929 will not be available for some months yet, but the following table affords an opportunity for interesting comparisons during the period covered.

Situation of 65 Italian Chemical Companies With Capital Exceeding 1,000,000 Lire

[Figures in thousands]

Year	Declared capital		Reserves		Profits		Losses		Dividends	
	Lire	Dollars[1]	Lire	Dollars[1]	Lire	Dollars[1]	Lire	Dollars[1]	Lire	Dollars[1]
1925	669, 307	26, 705	88, 579	3, 534	75, 777	3, 023	3, 368	134	57, 801	2, 306
1926	741, 586	28, 625	89, 489	3, 457	70, 395	2, 717	8, 217	317	57, 587	2, 223
1927	767, 242	39, 053	97, 266	4, 951	76, 808	3, 909	23, 900	1, 216	62, 585	3, 185
1928	826, 288	43, 380	95, 832	5, 031	92, 213	4, 841	13, 214	694	71, 228	3, 743

[1] Conversion rates 1926, lira=$0.0386, 1927, lira=$0.0509, 1928, lira=$0.0525

The above figures reveal that the 65 companies, which in 1928 accounted for 35 per cent of total capital investment in the industry, have continuously expanded during the past four years both absolutely and relatively to the gold value of the lire. The marked increases in both profits and losses during the past two years are an indication of the extremely hazardous condition of the market, which permitted certain branches of the industry to realize conspicuous profits while others took heavy losses. Total dividends paid, however, have steadily increased and in 1928 represented a return of 8.6 per cent on the capital investment, approximately the same return as in 1925.

Italian foreign trade in chemicals and allied products furnishes one more indication of the advance made in 1929 as compared with the two preceding years. In terms of the national currency, exports were worth 710,413,000 lire as against 709,559,000 lire in 1928 ($37,155,000 as compared with $37,252,000). Quantities exported also were the heaviest since 1922. Imports also gained in value to $48,585,000 as against $46,840,000 in 1928. The volume of imports of chemical and allied products during 1929 was heavier than in 1928 but still below the 1927 figure. The variations in total volume of chemical imports is determined largely by takings of fertilizer materials, which weigh heavily on the import side in point of volume.

Official figures for the total output of the Italian chemical industry are not available for later than 1927, in which year the aggregate of chemical and allied products is estimated at 3,674,000 tons Here again the total production figure for the entire chemical industry can give only a very superficial idea of the state of the industry. Owing to the decline in production of superphosphates and sulphuric acid during 1928, which items weigh heavily in estimating total production in terms of volume, and to the increased output of these products in 1929 (though still below the 1926 and 1927 figures), total production of chemicals and allied products in Italy may be roughly estimated at 3,340 000 tons in 1928 and 3,600,000 tons in 1929

The years 1928 and 1929 may be characterized as a period of consolidation and concentration rather than of expansion and ramification The two or three big groups devoted their energies to strengthening their organizations, and in several cases production was held up for the overhauling of plants and technical processes and for the installation of more modern and efficient machinery On the other hand, there were a number of interesting new departures during the past two years, among which may be mentioned the development of the solvents industry by the Distillerie Italiane and the entry into this field of the powerful Montecatini group through its subsidiary, the Soc Elettrochimica del Toce, in concert with the French companies Usines de Rhone and Gillet, for the production of synthetic butyl and ethyl acetate This same company is manufacturing acetic acid and acetic anhydride, acetone, copper acetate, and cellulose acetate This latter product will be utilized by the Montecatini in the production of cellulose-acetate rayon in the new plant at Pallanza, which began operations during 1929, while the Montecatini will produce solvents not only for its subsidiary, the Soc Italiana Duco, but for the Italian pyroxylin-lacquer industry in general The latter industry likewise has been developed in Italy within the past two years The Montecatini was first in the field through its subsidiary, the Soc Italiana Duco, operating on American patents, but within the past year a number of Italian companies have begun the manufacture of pyroxylin lacquers, and there are now three or four domestic brands on the market competing with the imported lacquers

Other chemical products new to Italy which have been developed during the past two years are sodium hydrosulphide by the Fabbrica Sali di Bario, glycocholic acid, hexachloroethane, phthalic anhydride, synthetic anthraquinone, a complete line of vat dyes, acetylene, and lamp black produced on the Lenghi patents by the A C N A group, sodium formaldehyde sulphoxylate and a complete series of hydrosulphites by the Appula, activated carbons by the Chimica Lombarda A E Bianchi, iodine by the Terme Salsomaggiore, bromine by the Soc Italiana Bromo, etc

CENTRALIZATION

Under the program of conservation of energy sponsored by the Fascist Government the policy of centralization of industrial forces is not only favorably regarded but actively encouraged The movement has taken two forms, one of mergers of single groups in the same or allied industries and the absorption of smaller units by the larger corporations and the other the acquisition of the controlling interest in independent companies on the part of the large corporations The development of the impulse toward amalgamation was furthered by the Government by the remission of taxes on industrial and trade mergers late in 1927 This measure has recently been extended for another year Italian industry promptly took advantage of this facility, and 1928 was a year of unification, not only in the chemical industry but in all branches of Italian industrial life The movement was continued during 1929 Unified buying of raw materials and centralized marketing organizations with a view to effecting the maximum economy in production and distribution costs are especially favored by the Government, and at least one case is on record where an industry was refused increased tariff protection until such a time as it could show reorganization, with centralized buying and reduction of production costs

The most striking instances of centralization which took place in the chemical industry in 1928 and 1929 were in the dyestuffs, fertilizer, rayon, tartaric, and citric industries In 1927 an understanding was reached between two manufacturers of dyes and the principal Italian producer of intermediates, but it was not until early in 1928 that the merger became an accomplished fact. It included the S I P E Cengio, manufacturer of intermediates, the Fabbriche Materie Coloranti Bonelli, manufacturer of intermediates and dyes, and Italica, maker of dyes This group was merged under the name of A C N A (Aziende Chimiche Nazionali Associate), under the control of the Italgas group of Turin The Stabilimenti Schiapparelli, fine chemicals and pharmaceutical products, is also a subsidiary Italgas, which is one of the strongest concerns in Italy, controlling practically all the principal gas companies of the country, is a self-contained group, including crudes, intermediates, and finished dyestuffs

The Montecatini is perhaps the most powerful single corporation in the country Its wide-flung activities cover copper, sulphur, pyrites, zinc, lead, leucite and lignite deposits, marble quarries, hydroelectric power, production of copper sulphate, sulphuric acid, nitric acid, superphosphates, synthetic ammonia, potash fertilizers, explosives, pigments, pyroxylin lacquers, alumina and aluminum metal, rayon, solvents, and a long list of heavy chemicals Early in 1928 the Montecatini absorbed 13 of its subsidiary companies with a total capitalization of 110,000,000 lire The companies were largely producers of superphosphates and sulphuric and other industrial acids A list of subsidiary companies in which the Montecatini owns the controlling interest will be found at the close of this report

The year 1928 witnessed a complete reorganization of the citric and tartaric acid industries. The two chief producers of these products in Italy were the Appula of Milan and the Arenella of Palermo. An agreement was reached in 1928 whereby the Appula would confine itself to the production of tartaric products and the Arenella to citric acid At the same time the Distillerie Italiane gained control of the Appula, thus adding the tartaric industry to its chain of products, which are primarily alcohol, carbonic-acid gas, bicarbonate of soda, and solvents. The Banca Commerciale had bought up the majority of the stock of the Arenella When the two industries were reorganized, the controlling interest in the Arenella was acquired by a Milan group in which the Italgas and the Montecatini are represented jointly

Early in 1928 the Italian Solvay absorbed the Soc Adria, with an ammonia caustic-soda plant at Monfalcone This merger had an unsettling effect on the caustic-soda market and prejudiced sales of electrolytic caustic soda

The Montecatini recently extended the scope of its activities by acquiring the controlling interest in the Soc Italiane Litopone, the only Italian producer of lithopone The Montecatini already controls the only Italian company manufacturing titanium oxide

In 1929 further concentration was attained in the already highly centralized alcohol industry by mergers within the group of the Zuccherifici Nazionali, formerly the Zuccherificio e Distilleria Gulinelli, controlled by the Distillerie Italiane These recent mergers give the two groups of the Distillerie Italiane and the Zuccherifici Nazionali a practical monopoly of the Italian alcohol industry

DOMESTIC CARTELS

The observations which have been made in connection with the attitude of the Italian Government toward industrial mergers and combines are equally valid as regards the cartel movement, both domestic and international Agreements among manufacturers for the purpose of price fixing and allocation of production and market quotas are in no way discouraged, nor does any restrictive legislation exist The policy of collective regulation of sales apparently is regarded as an effective means of combating the harmful effects on industry of destructive competition and price cutting

The danger that the consumer may suffer through centering of the control of an industry in one powerful concern or in a group of producers seems to be disregarded There are perhaps three reasons for this apparent neglect of the interests of the consumer. In the first place the Facist régime is concerned with fostering the industrial development of the country, and for this reason it is not inclined to put any obstacles in the path of the growth of major industries Secondly, owing to the political make-up of Italy relations between private industry and the Government are closer there than elsewhere Through the corporative or guild system the Facist Government is in a position to exercise a maximum of control over private enterprise If it becomes apparent that private monopolies are working out in a manner prejudicial to the interest of any class of consumers in such a way as to react harmfully on the economic life of the nation, the Government can and does intervene Such Government intervention has repeatedly taken place through the Ministry of Corporations in wage disputes, and an interesting example of a check on prices was afforded at the beginning of the past agricultural season when the Government forced the fertilizer trust to lower the price of fertilizers

Nor is the Italian Government essentially preoccupied with protecting the small manufacturer One of the chief weaknesses of Italian industry has always been its excessive decentralization and individualism The gradual disappearance of the host of small manufacturers is part of the Italian program of standardization and efficient industrial and commercial organization, and predominance of large, centralized enterprises is regarded as an effective means of doing away with the destructive competition among the small producers which has kept certain branches of industry in a depressed condition

Common marketing on both domestic and export markets with price agreements is usual among manufacturers in the same line of industry More rare are agreements covering production quotas; cartels among different branches of the chemical industry are almost unknown As has been implied, the tendency is toward a continued expansion of the cartel movement

Mention may be made of a few outstanding examples of domestic cartels One of the oldest is the agreement among manufacturers of sulphur black and aniline salts, which fixes production quotas and prices The sulphur-black cartel includes the A C N A , the Chimica Lombarda A E Bianchi, the I N C A , the Fabbrica Lombard Colori Anilina, and Enrico Felli & Co , the aniline-salts cartels include the A C N A , the Chimica Lombarda A E Bianchi, and Dott L Cerini The only producer of sulphur black which is not in the cartel is the Industrie Chimiche di Melignano

Producers of electrolytic caustic soda market their products through a central sales office known as the Consorzio Commerciale Soda e Cloro This sales comptoire acts for the five large producers of electrolytic caustic soda, the A C N A , the Soc Meridionale di Elettricità, the Soc Elettrica e Elettrochimica del Caffaro, the Stabilimenti di Rumianca, and the Soc Anon Cellulosa-Cloro-Soda

When the citric-acid industry was reorganized in 1928 a common sales organization was formed under the name of the C I F A C (Consorzio Italiano Fabbriche Acido Citrico) With the Appula eliminated, the C I F A C represents only the Arenalla and the Sada-Bosurgi The Citrica, formerly operated by the Appula, has an agreement with the C I F A C whereby the Citrica will cease production for a period of 15 years in consideration of an annual premium from the C I. F A C of 500,000 lire The two plants of the Arenella and the Sada-Bosurgi enjoy a practically monopolistic position in the natural citric acid industry of the world Their agreement also covers division of the raw material, citrate of lime, sales of which are controlled by the Camera Agrumaria of Messina Only when the needs of the C I F A C have been satisfied is the surplus distributed among foreign consumers According to the terms of the agreement, the Arenella is said to receive 85 per cent and the Sada-Bosurgi 15 per cent of the supplies of citrate of lime available to the domestic industry. The result of the Italian monopoly of citrate of lime has been to spur on foreign manufacturers of citric acid in an effort to make themselves independent of Italian control by the development of a synthetic substitute for the natural product A process has already been developed in the United States, and in Belgium the Soc Sucrerie Tirlemontoise, a company in which the Montecatini and the A C N. A are financially interested, is operating on a sugar-fermentation process

The Italian rayon industry passed through a difficult period in 1928, owing largely to overproduction and price cutting The situation finally culminated in an agreement among the principal manufacturers early in 1929 allotting sales quotas on the domestic market as follows Snia Viscosa and Varedo, 50 per cent, Soie de Chatillon and Soc Generale della Viscosa, 25 per cent each

A central sales office has been organized The agreement, however, affects the home market only No agreement has been reached with regard to production quotas or sales quotas for export It is predicted, however, that an extension of the existing understanding to cover foreign markets will follow in the near future

During 1929 the domestic cartel movement received added impetus, and agreements were reached among producers of a wide range of chemicals covering production and sales quotas and fixing prices Domestic cartels were organized covering the following products Copper sulphate, sodium silicate, salt cake, sodium sulphide, formic acid, hydroquinone, iodine, calcium carbide, calcium cyanamide, and stearin Negotiations are under way tending toward concerted marketing agreements in the carbonic acid, pharmaceutical, and essential oil of bergamot industries

A number of producer-consumer agreements were concluded during the year, among which were price agreements between the new Italian bromine industry and producers of bromides, between the Soc Cromati e Bicromati and producers of yellow ocher and chrome dyes, and between the producers of solvents (Distillerie Italiane) and manufacturers of nitrocellulose lacquers Agreements are being negotiated between manufacturers of galalith and similar plastics and button manufacturers and in the soap and fatty-acids industries

PARTICIPATION IN INTERNATIONAL CARTELS

The Italian chemical industry is not yet deeply involved in international cartels, although there is no official opposition to such participation The Italian chemical industry is largely a postwar creation in such important branches as dyestuffs and nitrogen fixation, and until the last year or two the Italian producers have hardly been powerful enough to have a voice in the allotting of world markets, especially since they have been concerned with home consumption. Italy has, however, developed a strong nitrogen-fixation industry, with a capacity well in excess of present domestic needs Plants for the production of synthetic ammonia on the Casale and the Fauser processes are operating in practically every industrialized country of the world The Italian dye industry, with Government aid, begins to stand on its own feet The entry of the Italian units into international cartels in these industries appears imminent

At present, participation of the Italian chemical industry in international agreements is limited to the tartaric-acid industry, the nitrogen-fixation industry, the rayon industry, and the tanning-extracts industry

The tartaric-acid industry is concentrated in the hands of three firms, of which the chief is the Appula, having a virtual monopoly of the market This group created a central selling organization early in 1928 known as the Consorzio Italiano Tartarico, or, more briefly, "Italtartar," which is charged with marketing their products both at home and abroad Through the Italtartar an agreement has been reached with the German group known as the V W F (United Tartaric Manufacturers), covering allocation of markets, price fixing, and production quotas

In the nitrogen-fixation industry, the Montecatini, which controls, through its subsidiary companies, about 70 per cent of atmospheric nitrogen fixed in Italy, has reached an agreement with the German I G and with the British Sulphate of Ammonia Federation, allotting market quotas and fixing prices but not affecting production quotas In view of the importance of the nitrogen-fixation industry in the national-defense program, it is doubtful whether the Italian Government would countenance any agreement which limited the expansion of this industry The agreement provides for an interchange of technical information, and its principal object would seem to be to keep the price of synthetic nitrogenous fertilizers at a level which will encourage a greater world consumption in competition with Chile nitrate

Interpenetration and interrelations in the world rayon industry, with its ramifications, intersections, and dovetailings, form a labyrinthine maze which may be traced only after a most careful study, not suitable to this discussion Briefly, the chief Italian rayon manufacturers are linked with various world groups The Snia Viscosa has close connections with the Courtaulds-Glanzstoff, the Soie de Chatillon with Glanzstoff, Soc Generale della Viscosa with the I G.—Rotweil-Nobel-Du Pont-Tubize group The smaller companies, such as the Bemberg, the Enka, and the Tubize, have the connections which their names imply A closer coordination with regard to export markets may be looked for in the near future

As long ago as 1924 Italian producers of tanning extracts reached an understanding with regard to the domestic market Early in 1928 a European cartel was formed, including Italian, French, Swiss, and Yugoslav producers The agreement, which affects primarily chestnut extract, covers—

(1) Purchase of raw material with price fixing for chestnut wood and distribution of the exploitation zones with a view to economy in transportation costs

(2) Production quotas based on consumption, present production quotas are at the ratio of little more than one-half the capacity of existing plants

(3) Price fixing and selling terms on the home market of the contracting countries the domestic market of each country is reserved to the manufacturers of that country

(4) Price fixing and selling on foreign markets regulated according to the consumption requirements and competitive value of other tanning extracts on each market.

(5) A joint fund for propaganda purposes

It has been rumored at various times that the Italian dye industry had joined the German-French-Swiss combine These reports have been explicitly denied by the Italians as represented by the A. C. N. A., which accounts for about 70 per cent of Italian production of synthetic organic dyestuffs The other producers, the Chimica Lombarda A E Bianchi, the I N C A, the Fabbrica Lombarda Colori Anilina, Enrico Felli & Co., and the Soc Bergamasca are closely affiliated with the I. G, the British and the Swiss, respectively, and are not properly to be regarded as the Italian dye industry. The A. C. N A will probably eventually be drawn into some international combine, but it will naturally go with the group with which it can make the most favorable terms The industry in Italy is young and still struggling against heavy odds It has the support of the Government and does not mean to bind itself by any agreement which will put a barrier to future developments in the field of vat dyes

The domestic salt-cake group is a member of the European salt-cake cartel

During 1929 the Appula, the chief Italian producer of hydroquinone, entered into an agreement which includes the English, German, and French By the terms of the agreement the Italian market is left to the domestic industry, and Italy is assigned an export quota The agreement terminates at the end of 1931

During 1929 Italian producers of calcium carbide organized a domestic cartel, and before the close of the year entered the European calcium-carbide cartel

FOREIGN CAPITAL IN ITALIAN CHEMICAL INDUSTRY

It is almost impossible to ascertain with any degree of accuracy the extent of the participation of foreign capital in Italian chemical enterprises and the amount of stock of Italian chemical concerns which is held by foreigners A considerable amount of American capital is invested both in the Montecatini and in the Italgas group. Another American group is said to hold a small interest in Pirelli, Pirelli being the only Italian stock quoted on the New York Stock Exchange, although several Italian stocks, such as the Montecatini and the Snia, are offered on the curb market One American chemical corporation is interested in a number of ventures in the chemical field in Italy in concert with the Montecatini

A considerable part of Snia stock is held by American investors, 600,000 shares of this company having been sold in the United States It is difficult to ascertain to what extent the Snia has passed under foreign control It is known that when the company needed money in 1928 foreign capital, German and British as well as American, was taken in to an extent that made it necessary to form what is known under Italian law as a " comitato di difesa " (defense committee) through which the issue of plural-voting shares reserved to Italian buyers prevented the control of the company from passing to foreign shareholders

Important foreign interests are involved in the Italian aluminum industry While this industry may not be considered within the chemical field proper under ordinary circumstances, the development of a chemical process for the extraction of alumina from leucite, which is gaining in importance in Italy, brings the industry within the circle of allied industries The aluminum industry in Italy is in the hands of three groups, one controlled by an American company, one by the Montecatini, and one by the Swiss Neuhausen group.

The Usine du Rhone and Gillet are associated with the Montecatini in the Elettrochimica del Toce for the production of cellulose acetate and solvents and in the Soc Rhodia Seta for the exploitation of the Rhodia silk process which is being developed in the United States, Germany, and Belgium.

ITALIAN PARTICIPATION IN FOREIGN CHEMICAL ENTERPRISES

The same difficulty which presents itself in gaging accurately the extent of foreign participation in the Italian chemical industry arises in discussing Italian investments in foreign chemical companies It may safely be stated that the amount of capital stock held by private Italian investors abroad is small Such investments have been restricted in recent years by Government regulations prohibiting the exportation of capital, which restrictions were lifted only in April, 1930 There are, however, a number of cases in which Italian chemical companies have extended their activities to foreign fields Of signal interest are the undertakings of the Montecatini abroad In connection with the development of the Fauser process for nitrogen fixation, the patents covering which are held by the Montecatini, a subsidiary company, the A S E D , has been formed in Belgium, in which the Montecatini and the Belgian Coppée are jointly interested In exchange for the patent rights, the Montecatini is said to have received 50 per cent of the common stock and 70 per cent of the so-called founders' shares The Fauser process is also being used by the Cie Neerlandaise de l'Azote in the Netherlands, in which the Coppée, the Montecatini, the Banca Commerciale Italiana, and the Banque de Bruxelles are interested

Reference has already been made to the Belgian Societe Sucrerie Tirlemontoise for the production of synthetic citric acid in which the Montecatini and the A. C N A have a 50 per cent interest

The Soie de Chatillon controls the Viscose Rheinfelden in Switzerland, manufacturing visca In 1928 the Soie de Chatillon, together with an American group, formed an American corporation for the manufacture of cellulose-acetate rayon on the Chatillon patents The patents and processes are held by the Ruth Aldo Corporation which has been operating a plant near Paris, owned jointly with the Soie de Chatillon, since June, 1927

The Snia Viscosa also owns a plant in Poland

GOVERNMENT PARTICIPATION IN ITALIAN CHEMICAL INDUSTRY

A special commission for the chemical industry under the Ministry of National Economy was formed in May, 1928 A considerable fund has been put at the disposal of the commission for research work The Italian Government has given indirect aid to the chemical industry by the remission of the import duty on its raw materials, as, for instance, in the case of turpentine used in the production of synthetic camphor The only direct participation of the Government in chemical production is, however, the financial aid which has been extended to the dyestuffs combine, the A. C. N A It is difficult to gage the exact extent of the Government participation in this enterprise, the details being jealously guarded The sum of 50,000,000 lire has been mentioned as an initial loan, but it is probable that further assistance has been granted through the banks

The Italian Government exercises no particular control over the chemical industry, nor does it participate actively in the direction of the industry In fact, it is the boast of the Italian nitrogen-fixation industry that it has developed without official paternalistic aid.

RIGHTS OF FOREIGN SHAREHOLDERS IN ITALIAN CORPORATIONS

The position of foreigners as shareholders in the Italian chemical industry is the same as in all other branches of Italian industry. The Italian law does not in any way prejudice the rights of foreign stockholders as compared with nationals, beyond the stipulation that the majority of the capital stock, generally two-thirds, should be held by nationals in certain specified public-service corporations, such as telephone companies, merchant-marine companies subsidized by the State, air-transport companies, etc Foreign shareholders may not in any way be deprived of their voting rights, and the Italian law does not recognize a stock issue without voting rights. There is no legislation preventing foreigners from subscribing to new issues of shares However, the same object may be attained by introducing such a clause into the statutes of the individual company Up to the present, however, no example of this practice exists

The control of a company may be retained in the hands of national stockholders by an issue of plural-voting shares, which, according to Italian law, may be held only by Italian citizens As has already been stated, advantage was taken of this method in the case of the Snia. The board of directors can not force the transfer to new shareholders of stock held by foreigners However, a case has recently arisen in Turin where the Italian courts recognized as legal a change in the statutes of a company, voted by the majority of the stockholders, restricting the right of transfer of shares. Furthermore, in cases of necessity, there may be formed what is known as a committee of defense, which may stipulate conditions of time and place, whereby the foreign shareholder is put at a material disability to exercise his rights

On the whole, it may be said that, in practice, foreign shareholders in Italian companies are at no disability as compared with nationals These conditions are likely to continue as long as Italy is economically in a position where it desires to attract foreign capital for the development of national industry, as is at present the case

FOREIGN TRADE IN CHEMICALS

GENERAL TRADE

During 1929 Italy's purchases of chemicals and allied products abroad were valued at $48,585,000, as compared with $46,840,000 in 1928, and $41,096,000 in 1927 This figure represents the highest point reached in any year in point of dollar value Total tonnage of chemical imports in 1929 was 1,277,000 metric tons, an increase of 9 per cent over 1928 but still 6 per cent below the 1927 figure Practically the entire gain is accounted for by heavier takings of fertilizer materials, as, with the exception of coal-tar products, paints and varnishes, and plastics, imports by weight decreased as compared with 1928 but was still, in almost every case, heavier than 1927 imports for all the higher-processed chemicals

The following table shows Italy's total trade in chemicals during 1927, 1928, and 1929

ITALIAN FOREIGN TRADE IN CHEMICALS

Year	Imports			Exports		
	Metric tons	Lire	Dollars [1]	Metric tons	Lire	Dollars [1]
1927	1,367,000	807,387,000	41,096,000	370,000	665,515,000	33,875,000
1928	1 177,000	892,196,000	46,840,000	375,000	709,559,000	37,252,000
1929	1,277,000	928,966,000	48,585,000	377,000	710,413,000	37,155,000

[1] Conversion rate of the lira 1927, $0 0509, 1928, $0 525, 1929, $0 0523

The foregoing figures are exclusive of amounts received on reparations account

IMPORTS

Germany, France, the United States, Great Britain, and the Argentine, in the order named, are Italy's chief sources of supply for chemical and allied products In 1929 purchases from these six countries accounted for 72 per cent by value of the total imports Germany's share of Italy's chemical trade was 30 per cent of the total against 31 per cent in 1928; France has lost ground in the past three years, having supplied 24 per cent of the total in 1927, 19 per cent in 1928, and only 17 per cent in 1929; the United States has risen from fifth place in 1927 to third place in 1929, outstripping Great Britain and Switzerland, with 7 per cent of the total import trade in chemicals in 1929, as compared with 5 per cent in 1927 and 6 per cent in 1928

The following table shows quantity and value of imports during the past three years.

IMPORTS OF CHEMICALS AND ALLIED PRODUCTS INTO ITALY

Type	1929	1928	1927	1929	1928	1927
Industrial chemicals	*Metric tons*	*Metric tons*	*Metric tons*	*Lire*	*Lire*	*Lire*
Acids and anhydrides	11,711	13,836	9,365	22,042,000	23,661,000	17,294,000
All others	89,079	108,623	105,981	195,278,000	204,581,000	176,954,000
Sulphur	35	21	18	37,000	23,000	21,000
Coal-tar products [1]	14,260	10,252	12,462	107,368,000	94,133,000	75,165,000
Reparations account	6,840	13,782	9,941	-----	-----	-----
Dyeing and tanning materials [2]	42,278	45,809	40,873	42,615,000	46,034,000	41,347,000
Explosives	20	23	16	853,000	944,000	620,000
Matches	-----	-----	4	-----	-----	60,000
Fertilizers and materials	1,061,004	937,616	1,146,755	259,157,000	228,065,000	234,768,000
Glues, sizes, etc	2,874	2,403	1,906	14,778,000	12,849,000	10,689,000
Gums, resins, naval stores	33,133	35,019	29,774	84,611,000	88,115,000	84,235,000
Linseed oil	1,567	3,375	1,917	5,010,000	10,742,000	6,234,000
Waxes, animal and vegetable	318	345	288	3,221,000	4,205,000	3,807,000
Pigments, paints, and varnishes	15,592	14,500	13,689	71,980,000	63,064,000	61,662,000
Oils, essential	104	78	50	5,213,000	4,113,000	3,184,000
Drugs, prepared medicines, and pharmaceutical preparations	3,794	3,822	3,537	61,391,000	59,361,000	47,232,000
Perfumery and flavoring extracts	566	573	450	29,490,000	29,608,000	24,692,000
Pyroxylin, galalithe, bakelite, etc	970	722	577	25,922,000	22,698,000	19,423,000
Total	[4] 1,277,305	[4] 1,177,017	[4] 1,367,662	[4] 928,966,000	892,196,000	807,387,000
Equivalent in dollars [3]	-----	-----	-----	$48,585,000	$46,840,000	$41,096,000

[1] Including synthetic dyes

[2] Excluding synthetic dyes

[3] Exchange rates 1929, $0 0523, 1928, $0 0525, 1927, $0 0509

[4] Exclusive of amounts received on reparation account

Italian exports of chemicals and allied products in 1929 were valued at $37,155,000, or just slightly below the 1928 figure of $37,252,000, the highest value ever reached The volume of exports was greater than any year except 1926 Italy is an exporter of chemical products of high monetary value, as is shown by the fact that while the volume of exports in 1929 did not exceed 30 per cent of that of imports, they were valued at 75 per cent as much In point of value, Italy's chief chemical exports are heavy and fine chemicals essential oils, acids, pharmaceutical products, and dyeing and tanning materials Noteworthy gains were made in exports of essential oils, pharmaceutical and medicinal preparations, and pigments as compared with the previous year On the other hand, the export trade in heavy and fine chemicals, perfumery, dyes, and tanning materials declined

Great Britain was Italy's best market for chemicals in 1929, followed by France, the United States, Germany, Argentina, and Spain The Balkans, Russia, India, Egypt, and Brazil are also good customers

The following table shows quantities and values of chemicals and allied products exported during the past three years

EXPORTS OF CHEMICALS AND ALLIED PRODUCTS FROM ITALY

Type	1929	1928	1927	1929	1928	1927
	Metric tons	*Metric tons*	*Metric tons*	*Lire*	*Lire*	*Lire*
Industrial chemicals						
Acids and anhydrides	8 478	9,171	8,550	95,702,000	97,192,000	73,743,000
All others	43,404	57,998	35,874	127,384,000	131,399,000	122,395,000
Sulphur	221,836	192,352	213,780	108,433,000	103,572,000	125,555,000
Coal tar products [1]	1,457	1,334	820	19,041,000	15,378,000	10,684,000
Dyeing and tanning materials [2]	33,398	36,854	41,933	49,210,000	56,768,000	66,954,000
Explosives	1,972	5,088	155	9,398,000	16,173,000	2,013,000
Matches	1,465	1,286	1,279	9,183,000	8,709,000	8,062,000
Fertilizers and materials	41,424	48,851	42,469	27,233 000	30,633,000	23,942,000
Glues, sizes, etc	1,542	2,346	1,051	5,937,000	8,384,000	4,488,000
Gums, resins, naval stores	217	270	173	1,454,000	1,668,000	1,383,000
Linseed oil	169	163	194	784,000	761,000	1,077,000
Waxes, animal and vegetable	21	24	48	194,000	223,000	594,000
Pigments, paints, and varnishes	8,712	8,324	13,040	30,995,000	26,691,000	28,891,000
Oils, essential	931	1,021	950	143,012,000	131,084,000	115,559,000
Drugs, prepared medicines, pharmaceutical preparations	11,304	9,920	9,061	74,229,000	73,687,000	74,368,000
Perfumery and flavoring extracts	79	64	51	2,215,000	2,683,000	2,149,000
Pyroxylin, galalith, bakelite, etc	259	178	148	6,009,000	4,554,000	3,658,000
Total	376,668	375,244	369,576	710,413,000	709,559,000	665,515,000
Equivalent in dollars [3]				37,155,000	37,252,000	33,875,000

[1] Including synthetic dyes

[2] Excluding synthetic dyes

[3] Exchange rates of the lira 1929, $0 0523, 1928, $0 0525 1927, $0 0509

TRADE WITH THE UNITED STATES

IMPORTS

In 1929 Italy bought 61,906,000 lire ($3,238,000) worth of chemicals and allied products from the United States and sold us 69,248,000 lire ($3,622,000) worth These figures compare with imports of 46,936,000 lire ($2,464,000) and exports of 65,858,000 lire ($3,458,000) in 1928 Our sales of chemicals and allied products to Italy during 1929 in terms of dollars show a gain of 31 per cent over 1928 and of 50 per cent as compared with 1927

The following table shows the principal items figuring in Italy's trade with the United States in chemicals and allied products during the past three years

IMPORTS OF CHEMICALS AND ALLIED PRODUCTS INTO ITALY FROM THE UNITED STATES

Type	1929	1928	1927	1929	1928	1927
	Metric tons	*Metric tons*	*Metric tons*	*Lire*	*Lire*	*Lire*
Phosphate rock	76,215	54,650	29 478	10,855 000	5 768 000	3 991,000
Celluloid cellophane, etc , raw and manufactured	60	26	--	1 392 000	804 000	----
Rosin	7 095	6 132	5 448	10 311 000	9,2 4 000	10,695,000
Turpentine	162	255	3	160 000	781 000	----
Benzene toluene xylene crude	1,232	----	----	2,284,000	--	----
Vaseline, natural and artificial	294	260	146	849 000	824 000	545 000
Toilet preparations	52	27	13	1 292,000	737 000	609,000
Ammonium potassium and sodium thiocyanates	150	89	72	387 000	515 000	295 000
Chemical greases	372	287	295	810,000	805,000	900,000
Iodine	----	5	----	----	1 642 000	----
Inorganic chemical products unspecified	521	705	2 109	1 459 000	2 248 000	5 768 000
Organic chemical products, unspecified	1,552	930	835	12 690 000	5,579 000	4 855 000
Medicinal plants	121	324	263	1 117,000	1 481,000	905 000
Medicinal and pharmaceutical products	----	----	10	----	----	503,000
Dyeing and tanning materials [1]	475	678	160	1,667 000	2 092 000	725 000
Paints	65	41	35	530 000	504 000	506 000
Varnishes	515	519	414	5 496,000	6,388 000	5 205 000
Blacks	2 329	1 704	1 522	9,304 000	6,760 000	6,519,000
Household specialties	72	75	43	903 000	976 000	737,000
Total	91 262	46 685	40,844	61 906 000	46 936 000	42 424 000
Equivalent in dollars	( )	----	----	$3,238 000	$2 464 000	$2 159 000

[1] Excluding synthetic organic dyes

Conversion rate 1929, $0.0523, 1928 $0.0525, 1927 0.0509

Among the chemical products which the United States sells to Italy the most important are naval stores, lampblack, paints and varnishes certain organic chemical products such as fatty acids, coal-tar crudes inorganic chemical products such as iodine, caustic soda and other heavy chemicals, drugs, vegetable dyeing and tanning products and woods, pyroxylin products, and household specialties

Owing to the meagerness of the statistical data available, it is not possible to enter into any great detail in discussing our chemical imports from Italy During 1929 shipments of chemical products to Italy show a satisfying expansion of trade in practically all items Particularly noteworthy were the gains made in sales of naval stores, plastics, toilet articles, unspecified organic products, paints and varnishes, and blacks The trade in naval stores is confined chiefly to rosin The difficulties attached to unloading formalities for ocean-borne turpentine are such that American turpentine is not able to compete with the French and Spanish product, which comes in tank cars, except in the case of relatively small shipments made overland from northern ports by a few American naval-stores concerns which have distributing centers in northern Europe

Our trade with Italy in ready-mixed paints and varnishes has been steadily on the increase In 1929 sales of varnishes suffered a slight setback owing to the disorganized condition of the Italian market brought about by the overrapid development of the domestic pyroxylin-lacquer industry The rise of the domestic industry, however indirectly benefited our trade by creating an increased demand for nitrocellulose solvents, sales of which expanded imports of unspecified organic chemical products to more than double in

1929 the 1928 value The outlook for the future of exports of pyroxylin lacquers is favorable Numerous small producers manufacturing an inferior product and selling at cut prices sprang up during 1929 with the result that the market is temporarily disorganized As the product becomes better known consumers will begin to distinguish and buy on a basis of quality rather than price, and it is believed that these small manufacturers will be automatically eliminated

The steadily increasing sales of American toilet articles are an indication that Italy offers an attractive market for American specialties in these lines In 1929 we sold to Italy 1,292,000 lire worth of toilet articles, more than double the 1927 figure American tooth pastes, cosmetics, shaving creams, etc , find a ready sale in Italy among the native population while the yearly influx of American tourists creates a smaller but still worth-while market for the American makes of toilet and sanitary specialties and prepared medicines which the tourists are accustomed to buy at home

In spite of the development of the Italian dye industry, Italy is still an importer of organic synthetic dyes In 1929, 1,702 tons of dyes were imported, as compared with 1,909 tons in 1928 These figures include reparation dyes, 13 tons in 1929 and 328 tons in 1928 Germany alone supplied 60 per cent of commercial imports, Switzerland 32 per cent It is believed that American dye manufacturers should be able to procure a share of this trade

The varied range of chemical and allied products embraces countless items for which Italy is a market in which American manufacturers are actively or potentially sellers American chemical products enjoy an excellent reputation for quality, while certain American specialties carry a prestige in their trade names known throughout the world Chemicals which American exporters can market in Italy range from commodities, such as naval stores, through heavy and fine chemicals, particularly new products developed for a specialized industry, to such finished manufactures as paints, varnishes, lacquers, household specialties, polishes, cleaning fluids and powders, flavoring extracts, toilet articles, medicinal specialties, and other lines

EXPORTS

During 1929, 10 per cent of the value of Italy's total exports of chemical and allied products went to the United States Essential oils of citrus fruit alone accounted for more than half of Italy's total chemical sales to us Italy is an important source of supply for a number of raw and semimanufactured chemical materials or materials used by chemical industries Chief among these are crude argols and wine lees, sumac, licorice root, pigments and colored earths, tartaric acid, lemon and citron juice, glue, and, more recently, synthetic camphor Sales of crude argols and wine lees to the United States during 1929 increased 56 per cent in both volume and value over 1928 The trade in sumac, mineral-earth pigments, tartaric acid, and unspecified organic chemicals was heavier than during 1928 The appearance on the American market of synthetic citric acid proved a formidable competitor to the Italian natural product, and sales of citric acid from Sicily to the United States fell from 687,000 lire in 1927 to only 168,000 lire in 1929. Exports of Italian lemon and citron juice have diminished almost to the vanishing point, exports being valued at only 75,000 lire in 1929 as against 3,528,000 lire in 1927. The export trade in licorice root to the United States during 1929 declined to just about half its value in previous years.

During the past three years, Italy has entered the world market as a supplier of synthetic camphor, manufactured by the Soc. Marengo of Genoa. In 1929 Italy exported 136 tons of camphor, as against 70 tons in 1928 and 48 tons in 1927. In 1928 practically the entire exportation went to the United States.

The following table shows the principal items of Italy's export trade to the United States in chemicals and allied products.

EXPORTS OF CHEMICALS AND ALLIED PRODUCTS FROM ITALY TO THE UNITED STATES

Type	1929	1928	1927	1929	1928	1927
	Metric tons	*Metric tons*	*Metric tons*	*Lire*	*Lire*	*Lire*
Sulphur	216	------	155	194,000	------	179,000
Celluloid, cellophane, etc., raw and manufactured	39	------	------	887,000	------	------
Citrus oils	244	299	250	35,879,000	33,637,000	25,362,000
Essential oils, terpeneless	0.7	1	1	1,126,000	1,338,000	1,226,000
Toilet articles and perfumes	5	6	5	184,000	245,000	243,000
Chemicals, inorganic, unspecified	1,282	2,773	1,089	2,968,000	3,138,000	1,360,000
Citric acid	11	29	47	168,000	456,000	687,000
Tartaric acid	281	214	300	2,920,000	2,437,000	3,154,000
Argols and wine lees	1,605	1,069	1,070	6,823,000	4,353,000	3,894,000
Glycerin	125	------	87	412,000	------	409,000
Chemicals, organic, unspecified	788	215	164	4,156,000	1,196,000	1,189,000
Licorice root	760	1,378	1,120	1,610,000	3,376,000	3,000,000
Manna	23	29	16	414,000	407,000	237,000
Mannite	6	9	5	324,000	316,000	288,000
Camphor	------	65	------	------	1,018,000	------
Medicinal plants	234	280	180	644,000	744,000	525,000
Lemon and citron juice	67	382	566	75,000	2,295,000	3,528,000
Pharmaceutical products and medicinal specialties	108	85	89	2,453,000	2,074,000	2,455,000
Sumac	3,731	3,332	4,363	4,132,000	3,525,000	5,487,000
Pigments and colored earths	1,673	1,362	1,379	2,134,000	3,331,000	3,694,000
Glue	232	566	344	1,013,000	1,972,000	1,387,000
Tanning extracts	358	------	------	732,000	------	------
Total	11,792	12,094	11,230	69,248,000	65,858,000	58,304,000
Equivalent in dollars[1]	------	------	------	3,622,000	3,458,000	2,968,000

[1] Conversion rate: 1929, $0.0523; 1928, $0.0525; 1927, $0.0509.

PRODUCTION OF CHEMICALS

HEAVY CHEMICALS

PYRITES

During 1929 the Italian pyrite mines yielded 698,550 tons of pyrites as compared with 558,390 tons in 1928 and 625,338 tons in 1927. These figures include both iron and copper pyrites, the latter accounting for about 15 per cent of the total output. Italian pyrites, largely used for production of sulphuric acid, have an average sulphur content of 46 ± per cent. The mines operated by the group controlled by the Montecatini company represent about 75 per cent of the total output of pyrites. The output of the Montecatini mines in 1929 increased 22 per cent over 1928, the company announces that the 1930 production will exceed that of 1929.

In addition to home consumption of domestic pyrites, there exists both an outgoing and an incoming trade movement in this raw material. Italy imported 185,224 tons of iron pyrites in 1929, largely from Spain, as against 128,478 tons in 1928. Owing to the lessened domestic consumption of sulphuric acid by the fertilizer industry and an attendant accumulation of stocks of pyrites, a greater volume of pyrites was available for export, and exports of pyrites exceeded imports by 45,393 tons.

The export trade in pyrites has steadily increased from 100,079 tons in 1927 to 188,791 tons in 1928 and 230,617 tons in 1929. Shipments abroad are made practically entirely by the Montecatini group, while this same group took 87 per cent of the total imports of iron pyrites in 1929. The Montecatini group has concluded long-term contracts abroad for sales and purchases of pyrites. Total Italian imports of pyrites were 126,937 tons in 1927, 128,478 tons in 1928, and 185,224 tons in 1929. The heavy current of trade in both directions is entirely a matter of transportation costs. Owing to the relative location of mines and sulphuric-acid plants, transportation by sea is, in certain cases, considerably more economical than an inland freight haul.

SULPHURIC ACID

Italy's supply of sulphuric acid is derived almost entirely from the roasting of iron pyrites, only a very small proportion being obtained from the processing of sulphur. The Italian sulphuric-acid plants produce enough to supply the country's need, so that foreign trade is unimportant. There are at present 82 plants with an annual capacity of 1,304,000 tons of 50° Bé., distributed as follows: Northern Italy, 55 plants, 810,500 tons capacity; central Italy, 17 plants, 295,500 tons capacity; southern Italy, 5 plants, 109,000 tons capacity; and islands, 5 plants, 89,000 tons capacity.

Production of dilute sulphuric acid reached its highest point in 1926 with an output of 1,137,000 tons. It is estimated that approximately 86 per cent of Italian production is used by the superphosphate industry The years 1927 and 1928 witnessed a falling off in the use of superphosphates by Italian farmers, with a consequent decline in production of sulphuric acid Although consumption of superphosphates was somewhat greater in 1928 than in 1927, production was less, the increased deliveries having been made from the carry-over from 1927 The same condition applied to raw materials, and the actual output of dilute sulphuric acid was less in 1928 than in 1927 and well below the 1926 figure Both production and consumption of superphosphates made a marked recovery in 1929, with an accompanying increase in the output of sulphuric acid Production figures are not available later than 1927, but it is estimated that 1929 production of sulphuric acid was approximately 5 per cent below the 1927 output but considerably heavier than that in 1928

About 60 per cent of the total output of dilute sulphuric acid is produced by the plants owned or controlled by the Montecatini, the largest single manufacturer of artificial plant foods

In addition to dilute sulphuric acid Italy also produces concentrated sulphuric acid and oleum In spite of the decline in production of dilute sulphuric acid, the output of the more concentrated forms continues to increase While no figures are available later than 1927, production of concentrated sulphuric acid and oleum continued to increase in 1929 as compared with preceding years

The following table shows production and capacity of the various grades of sulphuric acid from 1925 to 1927, figures for 1928 and 1929 not being available

ITALIAN PRODUCTION OF SULPHURIC ACID

[In metric tons]

Type	1927	1926	1925	Capacity 1927
50° to 52° Be	1 124,100	1,137 000	1,106 000	1,304,000
66° Be	70 545	65,130	61,660	88,000
Fuming (22 to 25 per cent free SO_3)	19 320	18 420	19,925	44 500
Fuming (60 per cent free SO_3)	545	860	905	4 000

Utilization of pyrite ash —The new process for treating pyrite ash to free it of its copper and sulphur impurities in order to recover pure iron ore, is now being applied industrially in a plant at Porto Marghera (Venice) belonging to the Montecatini Operations were begun in 1928 The pyrite ash is treated by roasting and chlorinization with an admixture of sodium chloride, followed by lixiviation The purified ashes are then pressed into bricks which contain from 55 to 60 per cent pure iron ore and which constitute an excellent blast-furnace material Important by-products are obtained in the form of copper precipitate (86 per cent grade) and sodium sulphate, or Glauber's salt Italian consumption of iron pyrites, which is estimated at approximately 600,000 tons annually, gives a residue of 450,000 tons of pyrite ash from which 270,000 tons of iron may be recovered The Porto Marghera plant is equipped to turn out 400 tons of iron briquettes in 24 hours with a by-product output of 8 to 10 tons of copper precipitate and about 50 tons of Glauber's salt.

During 1929 120 223 tons of decopperized pyrite ash were obtained at the Porto Marghera plant and 47.409 tons of iron briquettes, as against 69 478 tons of pyrite ash and 48.873 tons of briquettes in 1928. Italy exports the pyrite ash not absorbed by the domestic steel industry, and in 1929 exports of pyrite ash totaled 280.481 tons as compared with 144.345 tons in 1928 and only 17.364 tons in 1927.

The Montecatini obtained 5,207 tons of Glauber's salt as a by-product of the pyrite-ash process in 1929 as against 3,725 tons in 1928, and 2 884 tons of copper precipitate against 1.930 tons in 1928. The company utilizes this latter by-product in its preparation of copper sulphate.

HYDROCHLORIC ACID

The capacity of existing facilities for the manufacture of hydrochloric acid in Italy estimated at 80.000 tons, is more than adequate to cover the country's needs. This acid is obtained by three processes; namely, by direct synthesis of chlorine and hydrogen as a by-product of the production of electrolytic caustic soda, by the action of sulphuric acid on common salt, and by the reaction of chlorine and steam over coal by the Poma process. Production of hydrochloric acid reached its peak point in 1926 with an output of 45,800 tons, which declined to 43,340 tons in 1927. No more recent production figures are available. A number of causes contributed to a further contraction of production in 1928, so much so, that the output fell short of the demand. One of the factors was the critical condition of the electrolytic caustic-soda industry, owing to the competition from ammonia soda. Several plants suspended operations, with a consequent reduction in the available supply of synthetic hydrochloric acid. On the other hand, the output of hydrochloric acid obtained by the sodium chloride-sulphuric acid process is governed by the market for sodium sulphate or salt cake obtained in conjunction with the hydrochloric acid. The market for this product having been weak during 1928, the output of hydrochloric acid by this process received an automatic check. During 1929 the market for salt cake strengthened. Accumulated stocks were disposed of, and consequently production of hydrochloric acid took an upward trend.

Italy being self-sufficient in hydrochloric acid, imports and exports are negligible.

Italy has an abundant supply of salt, the basic material for the production of hydrochloric acid, caustic soda, and other major chemical products. In 1929 the domestic supply of salt totaled 936,335 tons, of which 615,830 tons were sea salt, 53,040 tons rock salt, and 257,465 tons spring salt, obtained mostly from the brine pits around Volterra in Tuscany. Salt production during the past three years has been as follows:

ITALIAN SALT PRODUCTION

[In metric tons]

Type	1929	1928	1927
Sea salt	615, 830	561, 695	685, 970
Spring salt	257 465	274, 516	298, 154
Rock salt	63, 040	67, 187	66, 850
Total	936, 335	903, 398	1, 050, 974

Domestic supplies of salt are in excess of the demand, so considerable amounts are exported. Owing to the fact that a good part of the salt produced is deficient in purity, however, some amounts are imported. The exports amounted to 98,037 tons in 1927, 95,008 tons in 1928, and 122,598 tons in 1929; the imports were 31,415 tons in 1927, 52,280 tons in 1928, and 43,491 tons in 1929.

NITRIC ACID

Italian production of nitric acid, while it has more than doubled during the past three or four years, is still well below the needs of the domestic consuming industries. With the development of Italian manufacture of high-analysis nitrogen fertilizers the demand for nitric acid has increased more rapidly than has the national output. Prior to 1926 nitric acid was obtained in Italy exclusively by the action of sulphuric acid on imported sodium nitrate. Owing to the fact that the sodium nitrate had to be brought in from abroad and that the cost of obtaining high concentration was excessive, the needs of domestic industries using nitric acid were supplied in part by imports of synthetic nitric acid from abroad.

In 1926 the Italian chemical industry made an effort to free itself from dependence upon external sources of supply by the application of newly developed processes for obtaining nitric acid from the oxidation of ammonia. Plants were erected by the Montecatini at Novara and Meran and by the Soc. Azogeno at Bussi. In 1927, 12,000 tons of synthetic nitric acid, calculated in terms of 100 per cent acid, were produced, which was utilized almost entirely in the manufacture of ammonium and calcium nitrate. The expectation that home production of synthetic nitric acid would, in the course of a year or two, reach a point of development which would make the country independent of the imported product has not yet been realized. It was found that the cost of obtaining concentrated acid was too high, owing to the difficulty of oxidizing more than 90 per cent of the ammonia and of absorbing remaining traces of oxides. Both the Montecatini and the Azogeno have further perfected their processes with a view to reducing production costs. The Montecatini process consists of oxidation of the ammonia under pressure, while the chief advantage of the Azogeno process lies in the reduced diameter of the absorption towers. Total production of nitric acid in terms of the technical grade at 36° B. reached 22,160 tons in 1927, as compared with 11,865 tons in 1925 and 11,400 tons in 1926. The Montecatini produces 75 per cent of the Italian output. During 1929 the capacity of the Meran and Cotrone plants of the company was notably increased. The capacity of the Novara synthetic nitric acid units is now being doubled. An indication of the increase in domestic production of nitric acid is given by a decline of 19 per cent in imports of nitric acid in 1929 as compared with 1928. Imports of nitric acid were 9,231 metric tons in 1929, 11,391 metric tons in 1928, and 8,110 metric tons in 1927. Exports are negligible.

ALKALIS AND DERIVATIVES

Sodium and potassium carbonate and bicarbonate.—Practically all the Italian needs of soda ash and sodium carbonate are supplied from the Rosignano plant of the Italian Solvay Co., together with the Monfalcone plant of the old Adria Co near Trieste This latter plant which was severely damaged during the war, was rebuilt and renewed operations in 1925 It has recently been absorbed by the Solvay Prior to the erection of the Solvay plant at Rosignano in 1919, Italy was dependent on foreign sources of supply for soda, but domestic production, practically a monopoly of the Solvay Co., is now more than adequate for national needs Imports, consequently, are negligible, exports also being unimportant Present plant capacity is estimated at 278,000 tons anhydrous soda ash and 12 000 tons sodium carbonate The output has risen from 138.000 tons in 1925 to 185.000 tons in 1927 No recent production figures are available

Italy has no domestic production of concentrated potassium carbonate Consumption is represented by imports, which totaled 1,387 tons in 1929, 969 tons in 1928, and 922 tons in 1927 Italy has considerable quantities of vinasse cinder obtained from the residue from the distillation of sugar-beet molasses This product contains from 60 to 70 per cent of potassium carbonate together with other salts and is used in its natural state as a soil dressing According to official production figures, 8.100 tons of vinasse cinder were obtained in 1927. 6 800 tons in 1926, and 8.990 tons in 1925 The 1929 production figures are not available, but the output may be estimated at the 1927 figure Exports totaled 1,838 tons in 1927, 2.491 tons in 1928, and 3 055 tons in 1929

Domestic production of sodium bicarbonate is insufficient to cover the domestic demand Production of this salt was begun in 1921 by the Distillerie Italiane at its Sesto S Giovanni plant, where waste carbon dioxide from the fermentation processes is utilized The Solvay plant at Rosignano has also recently started bicarbonate production Production figures are not available later than 1927, in which year 1.125 tons of bicarbonate of soda were obtained, as compared with only 385 tons in 1926 Increased domestic supplies are, however, reflected in falling imports, which declined from 1,982 tons in 1927 and 1.504 tons in 1928 to only 470 tons in 1929 The Solvay bicarbonate is offering keen competition to the product of the Distillerie Italiane

Caustic soda and allied products—The aspect of the Italian caustic-soda industry and market has undergone a complete change during the past two years This alkali is produced in Italy by two processes, the electrolytic and the Solvay The former was first in the field. and prior to 1919, when the Solvay plant was erected at Rosignano, all caustic soda produced in Italy was obtained by the electrolysis of sodium chloride The electrolytic process gives a caustic soda in solution at about 35° B., and, although a small proportion of the liquid caustic soda is fused into the solid product, domestic needs were supplemented by heavy imports of the fused caustic soda, the United States being one of the principal sources of supply The Rosignano plant has been steadily increasing its output, while that of the Monfalcone plant at Adria is negligible since the Solvay Co. absorbed it in 1928 Present indications are that the Monfalcone plant will be closed down

An idea of the revolution which has occurred may be gained from a brief retrospective survey In 1920, 20,790 ton of caustic soda in solution were produced with a plant capacity of 60.000 tons, and

5,600 ton of the fused product with a productive capacity of 10,800 tons. In that year the domestic output of fused caustic soda was supplemented by imports of just under 24,000 tons. By 1924 production of the liquid product had risen to 43,300 tons and that of the solid to 23,470 tons. Imports had dropped to 15,312 tons. In 1926 a further advance in output was made in both grades, the production of Solvay soda having reached 50,270 tons and that of the electrolytic product 52,780, while both industries increased the capacity of their plants to 80,000 tons and 85,000 tons, respectively. Imports were just over 2,500 tons. During 1927 production of Solvay caustic soda made a further advance, reaching a production of 70,280 tons, plant capacity having increased to 120,000 tons. Production of caustic soda in solution, on the other hand, remained practically stationary. Imports also declined further. In 1928 production of electrolytic caustic soda declined to 45,000 tons. During 1929 the electrolytic caustic-soda industry made a slight recovery in output with production estimated at 50,000 tons. Production figures for the Solvay product are not available later than 1927. Competition from Solvay soda, however, cut the margin of profit of the electrolytic product down to the vanishing point. Imports have declined to practically nothing.

At present the market is largely in the hands of the Solvay producers, the expansion of the Solvay plants having not only spoiled the market for foreign manufacturers but also worked a hardship on the producers of electrolytic caustic soda. The latter, of whom there are five big producers marketing their products through a central sales organization, have had a number of adverse factors to cope with which have worked together to render the situation of this industry unusually difficult.

In the first place, there has been the competition from the Solvay product, secondly, the difficulty experienced in disposing of the excess chlorine obtained as a by-product of the electrolytic process, and thirdly, the obstacles to exportation of by-products attendant on the revaluation of the national currency. In finding an outlet for products derived from excess chlorine lies the solution of the problem which confronts manufacturers of electrolytic caustic soda, as evinced by the fact that those producers which manufacture a wide range of chemicals, such as bleaches, insecticides and solvents have been able to withstand the Solvay competition. These include the A. C. N. A., the Rumianca, and the Elettrochimica del Caffaro, whereas the plants of the smaller Cellulosa-Cloro-Soda and the caustic-soda plants of the former Soc. Italiana di Elettrochimica were inactive for two years. The Cellulosa-Cloro-Soda at Naples resumed operations during the latter part of 1929. The electrochemical plants of the Soc. Italiana di Elettrochimica at Bussi were taken over by the A. C. N. A. in 1928, and the A. C. N. A. is now operating the Bussi caustic-soda unit. There seems to be some question whether the electrolytic caustic-soda industry will be able to survive in Italy. The chemists of the caustic-soda plants are giving their attention to the development of a wider range of chlorine products whereby, through a remunerative utilization of this by-product, production costs of the electrolytic caustic soda may be brought down to a level where it can hold its own on the market. Protection has been afforded the industry through a recent increase in the import duty on chlorine

Italian production of caustic soda in solution amounted to 55,200 tons in 1927 45 000 tons in 1928, and 50,000 tons in 1929 Production of fused soda amounted to 70,280 tons in 1927, later figures are not available Imports of fused soda dropped from 2,006 tons in 1927 to 364 tons in 1928 and 339 in 1929

The two by-products obtained in connection with the electrolysis of a salt solution to obtain caustic soda are hydrogen and chlorine The greater part of the hydrogen is combined directly with the chlorine to produce synthetic hydrochloric acid The Soc Elettrochimica del Caffaro, however, together with the Soc Anon Stereol, has recently erected a plant for the hydrogenation of oils in the vicinity of its caustic-soda plant, using its by-product hydrogen

The uses of chlorine are manifold The three most important in Italy are direct sales in the form of compressed liquid chlorine, the production of synthetic hydrochloric acid, and, last and most important, the preparation of calcium hypochlorite or chloride of lime

Consumption of chlorine declined during 1929, owing to the decrease in demand from the textile bleaching industry

The manufacture of bleaching powders provides an important outlet for excess chlorine The market for this product was unstable during 1929, owing to the fact that German and French producers were able, in many cases, to undersell the domestic manufacturers In fact, with a plant capacity of 23,500 tons, production of hypochlorite of lime declined from 13,700 tons in 1926 to 8,535 tons in 1927 No later production figures are available, but it is probable that a further decline in output took place Exports have also suffered a severe check, having fallen from 1,205 tons in 1927 and 1,373 tons in 1928 to only 297 tons in 1929 Imports have increased from 1,956 tons in 1927 to 2 108 tons in 1928 and 2,234 tons in 1929

Another bleaching agent manufactured by the caustic-soda producers is sodium hypochlorite The output of this product at 6 to 15 per cent active chlorine was 12,140 tons in 1927 as compared with 11,700 tons in 1926; no later figures are available There is no foreign trade of importance

One of the producers of electrolytic caustic soda, the Soc Elettrochimica del Caffaro, finds a profitable outlet for its excess chlorine in the manufacture of an insecticide powder, sold under the trade name of "Pasta Caffaro"

Two of the caustic-soda manufacturers, the Soc Elettrochimica Italiana and the Cellulosa-Cloro-Soda, erected secondary plants for the treatment of cellulose by chlorine In 1927 the output of cellulose had reached 3,800 tons Both these companies produced high-grade chemical pulp, using esparto grass as a raw material The cellulose plant of the Elettrochimica Italiana was taken over by the A. C N. A., together with the caustic-soda plant England was the chief market for this high-grade esparto cellulose, which was used in the manufacture of fine paper Both plants, however, have been inactive for two years

Italian manufacturers of electrolytic caustic soda have also developed a series of solvents and other chemicals on a chlorine base, such as carbon tetrachloride, terichloroethylene, tetrachloroethylene, hexachloroethane, and glycolic acid from monochloroacetic acid

Production of carbon tetrachloride declined from the peak of 728 tons in 1925 to 720 tons in 1926 and 447 tons in 1927 on a plant capacity of 1,000 tons, 1928 and 1929 production figures are not available After increasing from 395 tons in 1927, exports declined to 622 tons in 1928 and 214 tons during 1929 Imports have increased from 68 tons in 1927 to 119 tons in 1928 and 151 tons in 1929

Production of trichloroethylene, which was begun in 1926, was maintained at 1,900 tons in 1927, or practically total capacity

During 1929 the A C N A erected a plant at Bussi for the production of tetrachloroethylene

Miscellaneous sodium and potassium salts—Italian production of salt cake is insufficient for the country's needs, and there is a considerable importation The latest production figures available are for 1927, when 13,620 tons were produced with a plant capacity of 26,500 tons In that year, 9,440 tons of crystallized sodium sulphate or Glauber's salt were obtained with a total plant capacity of 14,500 tons Since salt cake is obtained as a by-product of the production of hydrochloric acid by the action of sulphuric acid on salt, the output of salt cake is limited by production of hydrochloric acid by that method As a considerable proportion of the hydrochloric acid produced in Italy is obtained synthetically, production of salt cake has not expanded in accordance with consumption needs

There are small deposits of Glauberite in Sicily, which in 1927 yielded 780 tons of sodium sulphate

Mention has already been made of the production of Glauber's salt as a by-product in the decopperization of pyrite ash in the Porto Marghera plant of the Montecatini The plant has an annual capacity of about 15,000 tons of Glauber's salt, 5,207 tons were obtained in 1929

During 1928 the market for salt cake was slack, stocks accumulated, and imports totaled 16,914 tons as compared with 31,451 tons in 1927 The market recovered during 1929, and sales returned to normal However, as there was a considerable carry-over from 1928 to dispose of, and, furthermore, production of ,Glauber's salt at Porto Marghere began to attain important proportions, imports declined further to 10,572 tons

Sodium sulphate is particularly important to Italy for its use in the production of sodium sulphide, a basic chemical in the manufacture of sulphur dyes, which account for over two-thirds of the Italian output of synthetic dyes This salt is also an important chemical in the manufacture of viscose rayon, of which Italy is the second largest world producer Plant capacity for sodium sulphide has been increased during recent years, and in 1927 had reached 7,200 tons annually In 1927, however, the latest year for which figures are available, plants were operating at only about one-half capacity, and 3,285 tons of sodium sulphide were produced as compared with 4,515 tons in 1926 The demand for sodium sulphide is increasing, owing to the growing consumption of the rayon industry The market for sodium sulphide is highly competive, and price considerations have favored imports, which, however, are on the decline, having fallen from 2,338 tons in 1927 to 1,286 tons in 1929 In order to control the market better, Italian manufacturers of sodium sulphite formed in 1929 a domestic cartel, which regulates production and sales quotas

Other sodium and potassium compounds which have assumed importance are sodium phosphate hyposulphite, bisulphite, hydrosulphite, silicate, and bichromates and potassium persulphate Production of sodium phosphate declined from 2 770 tons in 1926 to 1 860 tons in 1927 Imports which totaled 772 tons in 1927 were only 413 tons in 1929 Production of sodium hydrosulphite was begun in 1927 by the Appula and the Soc Elettrochimica del Caffaro During 1928 the Appula developed its hydrosulphite series, while the Fabbrica Sali di Bari began the manufacture of sodium hydrosulphide largely used by the tanning and rayon industries

OTHER INDUSTRIAL CHEMICALS

Calcium carbide—In 1927 Italian plants were equipped to produce 130,000 tons of calcium carbide Actual production, however, was just under 60,000 tons, some 2,000 tons less than in 1926 Later figures are not available Domestic consumption remained stationary during 1929 Imports have been declining from 1,497 tons in 1927 to 348 tons in 1928 and only 10 tons in 1929 Exports have increased greatly however, from 60 tons in 1927 to 5,132 tons in 1928 and 11 320 tons in 1929 Central and South America and Australia were the best markets

The slack demand during 1929, together with keen competition among producers, tended to force the market price of calcium carbide below remunerative levels In order to correct this situation, during the second quarter of the year Italian producers formed a consortium to regulate production quotas and fix prices Toward the close of the year, the Italian group entered the European calcium-carbide cartel

Borax and boric acid—Italy has an important source of boric acid in the Larderello district in Tuscany, where natural steam jets issuing from the soil yield crude boric acid from the condensation of their vapors, 4,000 tons of crude boric acid were produced in 1929, as against 3 744 tons in 1928 and 3,592 tons in 1927 The entire production is in the hands of one company, and 1928 witnessed a reorganization of export channels due to the fact that the Italian company had formerly marketed its products through a British firm, which entered the market itself as a competitor, thus forcing the Italian producer to find other outlets Exports of crude boric acid were 362 tons in 1929, 321 tons in 1928 and 75 tons in 1927, those of the refined product have declined from 1 301 tons in 1927 to 566 tons in 1929 On the other hand, borax was exported in notable quantities for the first time during 1928, sales abroad during that year having reached 732 tons as against only 1 ton in 1927 Exports of borax in 1929 were 554 tons. Imports are negligible

Insecticides—The most important and most widely used product for combating plant diseases and insect pests in Italy is copper sulphate which is used in the vineyards The Montecatini Co and its subsidiaries produce 65 per cent of Italian production of copper sulphate, and this group alone is the greatest world producer of this insecticide Italian plant capacity is estimated at 150,000 tons In 1928, 121,147 tons were produced as against 103,831 tons in 1927

Complete figures for 1929 are not available, but during the first seven months of the year 59,708 tons were produced Owing to adverse market conditions and a sharp decline in consumption, 1929 production was probably considerably below that of 1928 The Montecatini group produced 42,870 tons of copper sulphate in 1929, as against 77 180 tons in 1928 Fluctuations in the price of copper during 1928 and 1929 disorganized the market for copper sulphate consumers were adverse to buying for future needs, and 1929 opened with a heavy carry-over The exceptionally dry summer of 1929 and the fall in the price of wine owing to heavy production of low-grade wine were factors which contributed to reduce consumption of copper sulphate in 1929 and further depress the market The situation has continued into 1930 The Montecatini group is counting on its production of copper precipitate at Porto Marghera already referred to, to supply a part of its raw-material needs for the production of copper sulphate and thus render its output less susceptible to the fluctuations in the world price of copper

Italy exports copper sulphate to its neighbors to the east, but in spite of the fact that domestic plant capacity is well able to take care of domestic needs, local prejudice in favor of imported copper sulphate permits a considerable import trade Unsatisfactory world market conditions and reduced domestic consumption have curtailed both import and export trade in copper sulphate during the past two years imports having declined from 12,800 tons in 1927 and 15 593 tons in 1928 to 9,099 tons in 1929, while exports, which had reached 10,826 tons in 1927, were only 5,192 tons in 1929

Late in 1929 Italian producers of copper sulphate came to an agreement for marketing through a central sales agency with headquarters at Milan This organization includes the principal Italian producers, but its efficacy is considerably reduced by the failure of a number of producers to participate

One of the most popular mixtures for combating plant diseases in Italy is the so-called "Caffaro" paste and powder, a mixture on a copper oxychloride base In 1927, the latest year for which figures are available, 4,730 tons were produced, although plant capacity is 10,000 tons.

The care given to the citrus fruit trees of southern Italy and Sicily, and to fruit trees in general as a result of the campaign seconded by the State for the improvement of Italian fruits for export, has led to an increased use of orchard sprays and fumigants American manufacturers of these products have profited from the increased market for antiparasite compounds in Italy, and while it is not possible to identify the products in the foreign-trade figures a number of American specialties of this class are on the market and enjoy considerable prestige Hydrocyanic-acid fumigants and sprays on a petroleum base are both used for freeing fruit orchards from insect pests

FERTILIZERS

Every effort is being made to stimulate the use of chemical fertilizers in Italy The whole world is aware of the campaign which is being carried on by the Government under the slogan "The battle of the wheat" to increase domestic production of wheat In 1926 farmers responded readily to the propaganda for more intensive farming methods with a noteworthy increase in the use of fertilizers.

However conditions connected with the general economic situation, with particular reference to the stabilization of the lira, brought about a period of depression, with the result that consumption of artificial fertilizers declined sharply in 1927 An improvement was noted in 1928, particularly in the use of nitrogenous fertilizers, consumption of which in that year exceeded the 1926 figure, although the volume of superphosphates used, while greater than in 1927, was still below the 1926 figure A further recovery in consumption of all fertilizer materials took place in 1929 but the peak point of 1926 has not yet been regained

PHOSPHATES

Superphosphates—Italy occupies second place among producers of superphosphates in Europe and third as a world producer At present the industry counts 82 plants with an estimated annual capacity of 2,023,200 metric tons The phosphate rock used by the industry is imported largely from northern Africa, Tunisia being the principal source of supply, 769 501 tons were imported in 1929 as against 619,626 tons in 1928, of which about 70 per cent came from Tunisia

Production and consumption of superphosphates in Italy reached its highest point in 1926, with an output of 1,584,000 tons and a consumption of 1 540,000 tons Following on the revalorization of the lira, prices of agricultural products dropped in terms of the lira Farmers were short of money and dissatisfied with returns on 1926 crops Intensive fertilization, therefore, suffered a severe setback, and in 1927 only 1 218 000 tons of superphosphates were applied to the soil, the lowest consumption since 1922 During 1928 consumption recovered to 1,312,000 tons, and in 1929 made a further advance to 1 505,000 tons Per hectare consumption of superphosphates in Italy is still below what is considered the minimum requirements for intensive farming In 1929, average per hectare consumption is estimated at 86 kilos, as compared with 93 kilos in 1926, 73 kilos in 1927, and 79 kilos in 1928 Soil fertilization is more actively applied in northern Italy than in the southern Provinces, with a wide range between comsumption of 158 kilos in Emilia to as low as from 25 to 30 kilos per hectare in the southern districts

Superphosphate manufacturers were unprepared for the unusually low demand for fertilizers in 1927, and the year closed with a heavy carry-over, with the result that, in spite of the increase in consumption in 1928, a considerable part of deliveries was made from accumulated stocks, and the revised official production figure for 1928 shows an output of only 1,014,640 tons, less than the pre-war figure The 1929 production is officially estimated at 1,265,690 tons, an increase of 26 per cent over 1928 but still 20 per cent below the peak point of 1926 In 1929 the Montecatini group supplied 60 per cent of total superphosphates used in Italy, as compared with 55 per cent in 1928

There is an import and export movement in superphosphates, brought about by price fluctuations and relative transportation costs. Both imports and exports are relatively unimportant, one offsetting the other Imports come largely from France, while exports go to Italy's neighbors to the east During the past three years exports have remained constant between 25,000 and 30,000 tons, while imports have come down from 50,000 tons in 1927 to 22,000 tons in 1929

Bone phosphates—The output of bone phosphates represents only a small fraction of total superphosphate production Production of bone superphosphates in 1928, the latest year for which statistics are available, was 25,000 tons, as compared with 24,000 tons in 1927 and 30 000 tons in 1926

Basic slag—Italy produces practically no basic slag, and consumption is fairly represented by imports During 1929 basic slag was higher priced than superphosphates, and imports declined markedly as compared with the two foregoing years Consumption of basic slag is estimated at 66,000 metric tons in 1929 105,000 metric tons in 1928, 94,000 metric tons in 1927, 66,900 metric tons in 1926, and 10,000 metric tons in 1925

Other phosphates—Experiments have been made in the direct use on suitable soil of crushed phosphates There is also an output of a few thousand tons annually of a fertilizer known as phosphornitrate, a mixture of crushed phosphates and calcium cyanamide treated with sulphuric acid

In line with the world tendency to concentrate on high-analysis fertilizers with a view to reducing carriage charges, the Montecatini group is manufacturing phosphate of ammonia in its Cotrone nitrogen-fixation plant. This product analyzes at 50 per cent phosphoric anhydride and 20 per cent nitrogen The Cotrone plant will have a capacity of 20,000 metric tons Difficulties connected with water supply, roads, transportation and port facilities, etc, have retarded industrial production at Cotrone, and the output of ammonium phosphate has not yet exceeded a few thousand tons annually

NITROGENOUS FERTILIZERS

In contrast to phosphates, both production and consumption of nitrogen-bearing plant foods in Italy have advanced steadily during the past five years No figures on total production of nitrogenous fertilizers in 1929 are available, but the total output may be estimated at 250,000 tons, equivalent to 45,000 tons of nitrogen, an increase of 30 per cent over 1928 and almost tenfold the pre-war production. Consumption of nitrogenous fertilizer rose from 272 850 tons in 1928 to 347,000 tons in 1929, an increase of 27 per cent Consumption of nitrogenous fertilizers is now more than three times that of 1913 The range of production of nitrogenous fertilizers has been from 71,100 tons in 1925 to 105,700 tons in 1926, 141,100 tons in 1927, 192,500 tons in 1928, and an estimated 250,000 tons in 1929 Over the same period the consumption has increased from 182,500 tons in 1925 to 204,700 tons in 1926, 197,700 tons in 1927, 272,850 tons in 1928, and 347,000 tons in 1929

Italy derives its nitrogen for the soil from four sources, namely, calcium cyanamide, by-product ammonium sulphate, synthetic ammonia, and imported sodium nitrate The Italian industry is now equipped to fix 67,500 tons of nitrogen annually, as follows

	Tons
Calcium cyanamide	20, 000
Synthetic ammonia	44, 000
By-product ammonium sulphate	3, 500

In other words potential production has already outstripped present consumption, and until the needs of domestic agriculture expand or imports of nitrogenous fertilizers cease Italy is in a position to export An analysis of consumption of the various nitrogenous fertilizers reveals a tendency toward an increasing use of synthetic plant foods of domestic manufacture

Calcium cyanamide—Calcium cyanamide is manufactured in Italy by three companies operating five plants Two of these plants at St Marced (Aosta) and Domodossola, belong to the Montecatini group, two, at Collestatte and Narni, to the Terni group, and the fifth plant at Ascoli Piceno to an independent company At the close of 1928 these five plants had an annual capacity of 20,000 tons in terms of nitrogen

During 1929 the Terni concentrated production of calcium cyanamide in a large new plant at Papigno (Perugia) The capacity of this plant is not known but it is said to be capable alone of producing enough cyanamide to cover the entire domestic needs The plant began operations toward the end of 1929

Production and consumption of calcium cyanamide have increased steadily in the 5-year period 1925–1929 Production has been 37,800 tons in 1925, 44,800 tons in 1926, 38,800 tons in 1927, 54,900 tons in 1928, and 75,000 tons (estimated) in 1929 Consumption has ranged from 80,000 tons in 1925 to 86,400 tons in 1926, 62,330 tons in 1927, 78,050 tons in 1928, and 97,300 tons in 1929

Market conditions permit a considerable importation of calcium cyanamide which is, however, on the decline—20,049 tons in 1929 as compared with 32,500 tons in 1925 Imported cyanamide, therefore, has not participated in the increasing use of this fertilizer Exports are negligible

Italian calcium-cyanamide producers act together through a central body known as the Calcium Cyanamide Consortium, which fixes production and sales quotas

By-product ammonium sulphate—Italy obtains some 15,000 tons annually of by-product ammonium sulphate from gas plants, coke ovens, and peat and lignite distilleries With the steady increase in the fixation of atmospheric nitrogen, the output of by-product ammonium sulphate has come to represent not more than 12 per cent of the total production of this salt

Sodium nitrate—In spite of the readily available supply of domestic synthetic fertilizers, Chile saltpeter continues to enjoy the favor of the Italian farmer Consumption of imported nitrate of soda reached 74,000 tons in 1929, an increase of 28 per cent over 1928 consumption and of 48 per cent over 1925 The year 1929 marked the heaviest volume of Chile saltpeter ever used by Italian farmers The gain in consumption of this fertilizer was, however, relatively less than that made in the use of such high-analysis synthetic fertilizers, as calcium nitrate The imports have been 64,309 tons in 1925, 55,186 tons in 1926, 46,692 tons in 1927, 74,059 tons in 1928, and 83,132 tons in 1929 Consumption has been somewhat less than imports, indicating the accumulation of stocks The consumption figures are 50,000 tons in 1925, 48,800 tons in 1926, 38,500 tons in 1927, 58,000 tons in 1928, and 74,000 tons in 1929

Nitrogen fixation.—At the close of 1929 there were operating in Italy 9 plants for the fixation of atmospheric nitrogen with a total capacity of about 195 tons in 24 hours in terms of anhydrous ammonia equivalent to an annual capacity of some 45,000 tons of fixed nitrogen. These nine plants are operated by three groups, the Soc. Anon. Montecatini with plants at Novara, Mas, Meran, Cotrone, and Oschiri (Sardinia), the Societa Terni with plants at Nera Montoro and Terni, and the Soc. Azogeno with plants at Vado Ligure and Bussi. The plants of the Montecatini account for 72 per cent of total capacity, the Terni 20 per cent, and the Azogeno 8 per cent. During 1930 the Montecatini plans to put into operation new units in the plants at Novara and Cotrone, with an additional capacity of 80 tons of anhydrous ammonia in 24 hours, the Terni is increasing the capacity of the Nera Montoro plant by 16 tons of anhydrous ammonia in 24 hours. The Montecatini uses the Fauser process, the Terni the Casale process and the Azogeno the Claudé process. With the exception of the two plants using the Claudé process, the hydrogen for the preparation of the synthetic ammonia is obtained exclusively from the electrolytic decomposition of water. The Terni is now engaged in modifying the equipment at Nera Montoro so as to enable the company to prepare the synthetic ammonia from hydrogen obtained from coke-oven gas at considerably lower cost by a process conceived by Doctor Casale. The Casale process is applied in 10 countries with a total plant capacity of 901 tons in terms of anhydrous ammonia in 24 hours, the Fauser process in 6 countries with a total capacity of 215 tons of anhydrous ammonia daily. Additional units and new plants are being built for the Casale process which, by the close of 1930, will bring total plant capacity by that process up to 1 467 tons of anhydrous ammonia in 24 hours, when building plans are completed by the end of 1930, world capacity of anhydrous ammonia obtained by the Fauser process will have reached 855 tons a day.

The Italian nitrogen-fixation industry now prepares a full series of nitrogenous fertilizers, including ammonium sulphate, calcium nitrate, ammonium phosphate, ammonium nitrate, and ammonium sulphate-nitrate.

Both production and consumption of ammonium sulphate are steadily increasing. Production figures for 1929 are not available, but the output may be estimated at approximately 130 000 tons, an increase of 8 per cent over 1928. Consumption rose from 107,500 tons in 1928 to 122,660 tons in 1929. In 1927 Italy began for the first time to export ammonium sulphate, with an initial exportation of 12,237 tons which rose to 21,178 tons in 1928 and declined to 16,734 tons in 1929, with an excess of exports over imports of 5,631 tons. Spain absorbs practically the entire export of ammonium sulphate from Italy.

The synthetic fertilizer most widely used in Italy in 1929 after ammonium sulphate was calcium nitrate. Production of calcium nitrate was begun in 1927 with an initial output of 1,400 tons, 1929 production may be estimated at 6 300 tons, an increase of 65 per cent over 1928. Consumption during 1929 reached 31,360 tons, as compared with 12,300 tons in 1928 and just under 4 000 tons in 1927. Imports

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The 1929 production of ammonium nitrate and ammonium sulphate-nitrate may be estimated at 20,000 tons as against 13,800 tons in 1928. Consumption of those two salts rose from 17,000 tons in 1928 to 21,650 tons in 1929.

In 1927 the Montecatini manufactured about 1,000 tons of ammonium phosphate and in that year building was begun on a plant at Cotrone which would have, it was announced, an annual capacity of 20,000 tons ammonium phosphate. Owing to difficulties connected with the hydroelectric-power situation at Cotrone, the plants there did not operate freely during 1928. In the report of the company for 1929 no reference is made to ammonium phosphate, and, although advertisements of the Montecatini list ammonium phosphate among the synthetic fertilizers offered for sale, it is believed that production has not yet assumed important proportions.

The following tables illustrate production, consumption, and foreign trade in nitrogenous fertilizers during the 5-year period 1925–1929.

ITALIAN PRODUCTION AND CONSUMPTION OF NITROGENOUS FERTILIZERS

[In metric tons]

Type	Production					Consumption				
	1929[1]	1928	1927	1926	1925	1929	1928	1927	1926	1925
Calcium cyanamide	75,000	54,900	38,800	44,800	37,800	97,300	78,000	62,330	86,400	80,000
Ammonium sulphate	130,000	120,000	91,900	61,000	29,000	122,660	107,500	81,400	65,000	49,000
Sodium nitrate	------	------	-----	-------	-------	74,000	58,000	38,500	48,800	50,000
Ammonium nitrate and ammonium sulphate-nitrate	20,000	13,800	9,000	4,100	900	21,650	17,000	11,754	2,800	3,000
Calcium nitrate	6,300	3,800	1,400	-------	-------	31,360	12,300	3,786	1,700	500
Total	231,300	192,500	141,100	109,900	67,700	346,970	272,800	197,770	204,700	182,500

[1] Estimated

ITALIAN FOREIGN TRADE IN NITROGENOUS FERTILIZERS

[In metric tons]

Type	Imports					Exports				
	1929	1928	1927	1926	1925	1929	1928	1927	1926	1925
Calcium cyanamide	20,049	21,445	29,557	49,723	32,513	30	9	7	12	35
Ammonium sulphate	11,103	14,395	13,104	16,224	21,641	16,734	21,178	12,237	6	6
Sodium nitrate	83,132	74,059	46,692	55,186	64,309	11	22	42	36	34
Ammonium nitrate and ammonium sulphate nitrate	1,054	-------	-------	3	8,021	282	16	2	1	-----
Calcium nitrate	25,077	8,771	2,781	2,395	428	54	16	-------	-----	30
Total	140,415	118,670	92,134	123,531	126,912	17,111	21,241	12,288	55	105

POTASH

The use of potash salts for fertilizing in Italy is relatively small. With the exception of a few thousand tons annually derived from vinasse cinder, the country has no production. Farmers are tending in recent years to use more potash on the soil Imports have ranged from 50 142 tons in 1925 to 44,513 tons in 1926 23 785 tons in 1927, 50,802 tons in 1928, and 56,464 tons in 1929 Consumption has also fluctuated, from 51,000 tons in 1925 to 47,700 tons in 1926, 29,800 tons in 1927, 58,000 tons in 1928, and an estimated 63,000 tons in 1929

Italy possesses interesting potential resources of potash in its vast deposits of leucite, a double silicate of potassium and alumina Several processes have been evolved for the extraction of potash and alumina from leucite The first process to be tried out on an industrial scale was that of the Italian chemist Baron Blanc, whose company, the Soc Italiana Potassa, has worked the leucite deposits at Roccamonfina near Naples for a number of years The leucite rock is crushed and the so-called "enriched" leucite separated off from the gangue by electromagnetism Blanc's process consists in treating the leucite with sulphuric, hydrochloric, or nitric acid, whereby a potash salt corresponding to the acid used and alumina are obtained The crushed leucite from Roccamonfina has been, in part, applied direct to the soil and, in part, has served as a raw material for the Blanc processes The Soc Italiana Potassa for a number of years has exported crushed leucite to England, where it is treated by the Blanc process to obtain alum In 1926 the company Soc Ital. erected a plant at Bussi for the treatment of leucite with hydrochloric acid Difficulties connected with financial agreements with the company which had contracted to furnish the chlorine prevented operations at Bussi from assuming the importance expected The Soc Ital Potassa in 1929 reached an agreement with an American group, whereby American capital was put into the venture The company has acquired vast deposits of leucite near Civitavecchia, and a plant is now building at Aurelia which should be in operation by the close of 1930 At Aurelia the leucite will be treated with nitric acid to obtain potassium nitrate and alumina It is stated that the Aurelia plant will have an initial capacity to work up 20,000 tons of "enriched" leucite annually Such large figures as an eventual capacity of 1,000 000 tons of leucite annually, yielding over 250,000 tons of potash, have been mentioned, but such future projects are too remote to be taken into account at present

In the meantime, the Montecatini has been perfecting a process of its own for treating leucite with nitric acid Last year it was announced that experiments at the semindustrial plant of the company at Novara had been successful and that an industrial plant would be erected at Cotrone with an initial capacity of 6,000 tons potassium nitrate and 3,000 tons alumina The problem of the treatment of leucite is, however, one which is of equal importance to the aluminum and the fertilizer industries The Montecatini, which controls one of the most important Italian aluminum groups, now announces that for the present the proposed plans for the extraction of alumina and potash from leucite by nitric acid have been set aside, pending further research and experimental work on an entirely new process Exhaustive studies are being made of comparative production costs of alumina as obtained from bauxite, of which Italy has large deposits, and that obtained from leucite by the Montecatini's new method No hint of the nature of the new process is given

The Blanc and the Montecatini experiments are being followed with keen interest by both the aluminum and the potash industries.

The crux of the matter lies, as with new sources of any material, in the question of relative costs.

Italy has another potential source of potash in the salt pans of Tripoli. A company, the Compagnia Italiana Coloniale per la Potassa Marina, has been formed to exploit the saline resources at Pisida near the Tunisian border. It is stated that these salt pans can supply annually some 20,000 tons of potassium chloride, along with other salts, on an initial production. At present, however, the company has not yet succeeded in getting sufficient capital subscribed to bring its plans to realization.

ORGANIC CHEMICALS OF COAL-TAR ORIGIN

COAL TAR AND COAL-TAR OILS

Italy derives from its gas plants and coke ovens a supply of coal tar sufficient for the needs of industries using coal-tar distillation products. In 1927, 70,958 tons of coal tar were produced, as compared with 64,000 tons in 1926 and 61,410 tons in 1925. Gas plants furnished 43,000 tons in 1925, 48,000 tons in 1926, and 52,500 tons in 1927; coke ovens and lignite distillation furnished 18,410 tons, 16,000 tons, and 18,458 tons in the same years. Figures for 1928 and 1929 are not available. In 1929 Italy imported 945 tons of coal tar, but exports were about double that amount.

Supplies of coal-tar oils in Italy have increased steadily since 1923, when the recovery of such oils from coal tar and of light oils from illuminating gas was made obligatory. Total available supplies rose from 13,360 tons in 1925 to 19,705 tons in 1927, obtained as follows:

PRODUCTION OF COAL-TAR OILS IN ITALY

[In metric tons]

Item	1927	1926	1925
Coal tar oils			
Light	785	720	425
Medium	5,460	5,500	3,770
Heavy	8,660	7,400	5,820
Light oils from gas	4,800	3,843	3,345
Total	19,705	17,463	13,360

More recent production figures are not available.

The domestic sources of coal-tar oils are supplemented by imports and by amounts received on account of reparations, which during the past three years have ranged as follows:

ITALIAN IMPORTS OF COAL-TAR OILS

[In metric tons]

Item	1929	1928	1927
Light oils	22	7	47
Other	1,113	770	5,853
Reparations	6,827	13,434	9,704
Total	7,962	14,211	15,604

CRUDES AND INTERMEDIATES

Domestic production of coal-tar crudes in Italy, while steadily increasing, is not yet sufficient to cover the needs of the industry, and the deficiency must be made up by imports. Production of crudes rose from 7,768 tons in 1926 to 8,874 tons in 1927. Except for the item of crude benzol, of which 3,994 tons were produced in 1928, production figures on coal-tar crudes are not available later than 1927.

ITALIAN PRODUCTION AND IMPORTS OF COAL-TAR CRUDES

[In metric tons]

Type	Production		Imports		
	1927	1926	1929	1928	1927
Benzol					
Crude	4,800	3,843	7,340	6,301	4,488
Rectified	1,390	1,483			
Toluol	90	12			
Xylol	274	150			
Phenol	304	175	529	488	129
Naphthalene					
Crude	------	------	2,670	1,160	16
Refined	1,800	1,950	86	106	64
Anthracene	216	155	------	------	------
Total	8,874	7,768	10,625	8,055	4,697

Domestic production of intermediates is practically adequate to supply the needs of the Italian dye industry, only about 10 per cent of consumption is covered by imports. Production reached its highest point in 1926, with an output of 8,680 tons. A decline was registered in 1927 to 6,917 tons. Detailed figures for 1928 are not available, but production during that year may be estimated at approximately 7,100 tons. No estimates of production of intermediates during 1929 are available.

ITALIAN PRODUCTION OF COAL-TAR INTERMEDIATES

[In metric tons]

Type	1927	1926	1925	Type	1927	1926	1925
Aniline	680	930	1,030	Sulfanilic acid	37	70	90
Aniline hydrochloride	214	132	74	Other	4,500	5,290	4,990
Nitrobenzol	1,475	2,190	2,320	Total	6,917	8,680	8,542
Picric acid	11	68	38				

In connection with the manufacture of vat dyes, a number of intermediates new to Italy were added to its already extensive series by the A. C. N. A., the principal Italian dye and intermediate producer, during 1928. Chief among these may be mentioned the new plant for the production of phthalic anhydride, benzoylbenzoic acid, and anthraquinone.

Until 1922 Italy's manufacture of synthetic organic dyes was confined almost entirely to sulphur dyes Then attention was given to a wider range of dyes, and since that time progress has been continual, in spite of the severe competition on the home market which the Italian industry has to meet from well-established imported dyes Italian production of coal-tar dyes reached its highest point in 1926, with an output of 6,988 tons, production declined to 6,160 tons in 1927 but recovered to 6,900 tons in 1928 Of those totals sulphur dyes accounted for 4,848 tons, 4,265 tons, and 4,500 tons, respectively Figures for 1929 are not available, but it is estimated that in spite of competition from foreign dyes, domestic production was maintained at approximately the 1928 level

The increase in the production of dyes other than sulphur dyes is indicative of the trend of the industry During 1928 the A C N A added no less than 50 new dyes to its series of the more complicated dyes These new products include among the azo groups, heliamine, a fast cotton dye, a complete series of the primuline group; anthracene brown; bromindigo, among the basic dyes, auramine, bright green and Victoria blue, reds and scarlets derived from a naphthol A S base; and a number of other interesting vat and other dyes During 1928 the A. C N A manufactured 600 tons of synthetic indigo. The following distribution of the manufacture of dyes by classes during 1928 is of interest

	Metric tons
Sulphur black	4, 000
Other sulphur	500
Indigo	600
Direct	900
Acid and chrome	600
Basic and special	120
Nigrosine	130
Vat and naphthol base	50
Total	6, 900

The consolidated group of the A C N A produces all of the indigo, vat, and naphthol-base dyes made in Italy, 80 per cent of the basic and special dyes, 75 per cent of the nigrosine and direct dyes, 70 per cent of the acid and chrome dyes, 50 per cent of sulphur black, and 65 per cent of other sulphur dyes

Market conditions during 1929 favored the sale of imported dyes, and imports were the heaviest since 1924, totaling 1,689 tons, as against 1,581 tons in 1928 and 1,228 tons in 1927 Small quantities were also received on account of reparations, but deliveries of reparations dyes have ceased to be the disturbing element on the market that they have been in recent years During 1929 Germany supplied, exclusive of reparations dyes, 61 per cent of Italian dye imports, Switzerland 33 per cent, and France 4 per cent

Italy is able to export a modest volume of dyes to her eastern neighbors and colonies Sales abroad of sulphur black declined in 1929 as compared with other years, but those of other dyes show an improvement

ITALIAN FOREIGN TRADE IN ORGANIC SYNTHETIC DYES

[In metric tons]

Type	1929		1928		1927	
	Imports	Exports	Imports	Exports	Imports	Exports
Sulphur dyes						
Black	4 7	36 5	8 1	71 6	11 9	116 3
Other	49 7	14 2	49 8	4 3	50 7	2 4
Other						
Dry or containing less than 50 per cent water	1, 544 3	544 2	1, 436 8	284 0	1, 008 9	152 8
In paste containing 50 per cent or more water	90 0	6 5	85 8	8	156 9	10 5
Total	1, 688 7	601 4	1, 580 5	360 7	1, 228 4	282 0
On account of reparations	12 9	-------	328 2	-----	233 4	---------

An agreement exists among Italian manufacturers of sulphur dyes and aniline salts for fixing production quotas and prices During 1929 domestic dye producers reached agreements on certain other dyes besides sulphur dyes in order to present a more united front to the competition of imported dyes Although the Italian dye industry is not yet, properly speaking, a party to the Franco-German-Swiss agreement, during 1929 understandings were reached with foreign manufacturers covering a few specific dyes, details of which are not known

OTHER ORGANIC CHEMICALS

ALCOHOL AND OTHER SOLVENTS

Ethyl alcohol—Production of ethyl alcohol in Italy is calculated in terms of absolute alcohol for purposes of taxation. During 1929, 499,132 hectoliters of alcohol reduced to 100 per cent alcohol were produced, as against 485,988 hectoliters in 1928 Consumption of undenatured alcohol for medicinal and food purposes declined from 224,784 hectoliters in 1928 to 208,219 hectoliters in 1929 On the other hand, consumption of denatured alcohol for industrial purposes rose from 239,562 hectoliters in 1928 to 260,986 hectoliters in 1929 The carry-over of alcohol on December 31, 1929, was 129,324 hectoliters, as against 114,466 hectoliters at the close of 1928.

In general, about 75 per cent of Italian alcohol is distilled from sugar-beet molasses In 1929, however, the amount of alcohol distilled from sugar beets declined 8 per cent as compared with 1928, whereas alcohol distilled from wine and from grape cake increased from 643 hectoliters and 50,173 hectoliters, respectively, in 1928, to 18,348 hectoliters and 70,112 hectoliters, respectively in 1929

An unfortunate situation has been created for the alcohol industry by a simultaneous overabundance of molasses and of low-grade wine in the autumn of 1929 Owing to a large beet crop and increased sugar production during the 1929–30 sugar year, the available supply of molasses during 1930 has been unusually heavy These excess supplies could, however, have been easily absorbed by the alcohol industry, had not another factor intervened in the form of a heavy carry-over of low-grade wine which had deteriorated to the point where it was no longer suitable for beverage purposes In an effort to relieve the winemakers, the Government has recently enacted measures making the use of a proportion of alcohol at a fixed price in automobile carburants obligatory. At the same time, the manufacturing tax on alcohol was raised, but an increase in the tax remission on alcohol distilled from wine favors this grade of alcohol at the expense of molasses alcohol The combination of an increased manufacturing tax on molasses alcohol, plus the necessity in which distillers will find themselves of raising the price of alcohol for industrial purposes to offset the loss on the quantites delivered at the Government price for admixture with carburants, will, it is feared, act as a check on the use of this solvent for industrial purposes The new regulations became effective only in April, 1930, and definite judgment would be premature at this time, but the situation threatens to react unfavorably, not only on the alcohol industry but on the beet-sugar industry as well, and distillers are pessimistic as to the immediate future of the industry.

The alcohol industry in Italy is a practical monopoly controlled by the Distillerie Italiane and its subsidiaries.

Imports of alcohol have risen from 8,374 hectoliters in 1927 to 21,804 hectoliters in 1928 and 23,602 hectoliters in 1929.

Methanol—Production of methanol in Italy is on the increase, although competition from imported synthetic methanol is a handicap to the development of the industry Production of methanol rose from 486 hectoliters in 1927 and 714 hectoliters in 1928 to 3,200 hectoliters in 1929 Consumption is likewise increasing, 3,191 hectoliters in 1929 as against only 289 hectoliters in 1928 Imports were 405 tons in 1929 as compared with 550 tons in 1928 One plant, the S I R I (Società Italiana Ricerche Industriali), is now producing synthetic methanol by the Casale patents The plant is now producing 1½ tons a day and is equipped to turn out 6 tons a day, which would practically cover the country's consumptive needs

Acetic acid, acetone, butyl alcohol, and derivatives—Italy imports the bulk of the acetate of lime used in the manufacture of acetic acid and acetone Imports totaled 3,157 tons in 1929, as compared with 3,105 tons in 1928 and 2,157 tons in 1927 Acetic acid is obtained in Italy both from acetate of lime and synthetically. With the development of the cellulose-acetate rayon and pyroxylin-lacquer industries, consumption of these solvents is increasing In terms of 100 per cent acid, production reached 2,155 tons in 1929, as compared with 1,947 tons in 1928 and 1,286 tons in 1927 Imports of acetone exceed domestic production, having totaled 419 tons in 1929 and 461 tons in 1928, as against a domestic output of just over 100 tons In connection with the manufacture of butyl alcohol to be used in preparing solvents for the pyroxylin-lacquer industry, acetone is obtained as a by-product, and domestic production may be expected to increase In fact, the problem of disposing of the excess acetone is one which the young Italian solvent industry must solve if its products are to be competitive with imported solvents

The Italian rayon industry, which has formerly confined itself almost entirely to viscose rayon, is now turning to the cellulose-acetate products This necessitates supplies of the necessary solvents The Montecatini, through its subsidiary, the Soc Rhodiaseta Italiana, has just completed a plant for production of cellulose-acetate rayon at Pallanza on Lake Maggiore, and operations were begun in February, 1930 In connection with this plant, another company belonging to the Montecatini group, the Societa Elettrochimica del Toce, has erected a plant at Villadossola, near Pallanza, where operations have just begun, to supply the necessary chemical products The new plant will produce acetic acid, acetone, cellulose acetate, and acetic anhydride, the latter product new for Italy The young industry of the Montecatini has been given protection in the form of higher duties on cellulose acetate

The development of a domestic pyroxylin lacquer industry, following on the growing popularity of these lacquers among consumers, has given rise to a domestic production of solvents The Distillerie Italiane, which specializes in these products, has recently increased the capacity of its plants at Savona and Sesto S Giovanni, where it manufactures butyl alcohol and acetone and the solvents derived from these products Neither production nor trade figures are available, except in the case of butyl acetate, production of which was begun in 1926 with 10 tons and rose to 70 tons in 1927 The 1928 and 1929 figures will, no doubt, show a further increase However, the bulk of the market demand is still supplied by imported solvents American exporters enjoy a good share of this trade The combined output of solvents of the Montecatini and the Distillerie will be sufficient to supply the domestic market if the plants are operated at capacity Up to the present, however, these domestic solvents have not succeeded in displacing the imported products

Formaldehyde—The manufacture of formaldehyde was begun in Italy in 1925 Since that year the output has increased steadily and reached 680 tons in 1927 with a plant capacity of 1,300 tons. Later production figures are not available This domestic output has practically eliminated imports, which were formerly heavy

TARTARIC PRODUCTS

Two events occurred early in 1928 which were of great benefit to the Italian tartaric industry One was an increase in the export duty on tartaric materials and the other the formation of the Italtartar Consortium, the central sales organization. The first-mentioned measure was taken with a view to increasing the price of tartaric materials to foreign manufacturers of tartaric acid and thus indirectly benefitting the domestic industry There are no statistics available on production of crude tartar, but export figures show that the supply is sufficient to the needs of the domestic industry, leaving a considerable export surplus Domestic manufacturers of tartaric acid contend that they could increase their output of tartaric acid if the raw materials were not bought up by foreign importers and prices kept unnecessarily high by the demand from abroad They are now asking for a further increase in the export tax on tartaric materials In spite of efforts to keep tartaric materials in the country, exports of argols and wine lees totaled 8,817 tons in 1929, as compared with 8,181 tons in 1928 and 8,512 tons in 1927. Great Britain alone takes more than half of Italy's exports of tartaric materials, the United States, France, and Germany being also important markets Exports of tartaric materials were distributed by countries of destination during the past three years as follows.

EXPORTS OF TARTARIC MATERIALS FROM ITALY

[In metric tons]

Country of destination	1929	1928	1927
Great Britain	5,788	4,684	4,036
France	116	502	1,198
United States	1,606	1,017	1,070
Germany	149	656	1,009
Netherlands	154	383	748
Austria	271	151	78
Other countries	733	788	373
Total	8,817	8,181	8,512

Production of tartaric acid was 5 290 tons in 1927 as compared with 5,030 tons in 1926 Figures for 1928 and 1929 are not available, but, owing to the difficulty experienced by Italian manufacturers in securing sufficient supplies of raw material at reasonable prices, combined with growing competition on foreign markets from local products, production has remained at approximately the 1927 level The industry, however, benefited by the new selling arrangements and the agreement with Germany, as is reflected in the increase in exports of tartaric acid and the fact that, under the new management, the Appula, the chief producer, declared a 10 per cent dividend for the first time in several years In 1929 Argentina, Great Britain, France, and the United States, in the order named, were the best customers Exports of tartaric acid were distributed by destinations as follows

EXPORTS OF TARTARIC ACID FROM ITALY

[In metric tons]

Country of destination	1929	1928	1927
Great Britain	621	477	674
France	517	329	515
Spain	87	159	202
Other European contries	366	289	318
Argentina	1,142	1,036	315
United States	284	214	296
Balkans	326	308	379
North Africa and Near East	204	117	110
Far East	191	195	99
Other countries	394	339	224
Total	4,132	3,463	3,132

Production of cream of tartar declined from 2,130 tons in 1926 to 1,860 tons in 1927, 1928 and 1929 production figures are not available. Exports, totaling 1,553 tons in 1929, represented an increase from the figures of 1,254 tons in 1928 and 1,263 tons in 1927. Great Britain alone takes from 75 to 85 per cent of Italian exports of cream of tartar.

CITRIC ACID AND CITRATE OF LIME

The Italian citric-acid industry was entirely reorganized during 1928 in connection with the tartaric industry Prior to that year the Appula of Milan and the Arenella of Palermo were the chief manufacturers of these products, and both companies participated in both of the industries. In 1928 an agreement was reached whereby the Appula would confine itself to tartaric products, the Arenella to citric acid. At the same time important changes took place within the citric-acid industry itself With a view to eliminating unprofitable production, the smaller companies are paid a premium not to operate The Arenella of Palermo and the Sada-Bosurgi of Messina alone are producing This agreement is to cover a period of 15 years Production quotas are divided between the Arenella and the Sada-Bosurgi in the proportion of approximately 85 per cent and 15 per cent, respectively

Citrate of lime, the raw material from which citric acid is derived, is distributed exclusively through the Camera Agrumaria of Messina, an organization which receives the citrate of lime from producers and apportions sales quotas to the domestic industry and foreign buyers The Camera Agrumaria also fixes the price of citrate of lime With the reorganization of the Italian citric-acid industry, it has become increasingly difficult for foreign manufacturers to obtain supplies of citrate of lime from Sicily The needs of the domestic industry are considered first, and only the surplus is made available for export The Camera Agrumaria still has on hand considerable stocks of citrate of lime In fact, it was created in 1922 in order to dispose of accumulated stocks gradually without upsetting the market Stocks have been gradually reduced from 18,622 tons in 1923–24 to 3,967 tons at the close of the 1928–29 season The latest official production figures for citrate of lime are as of the year 1926–27, when 5,457 tons were produced For subsequent years, estimates only are available, 1927–28 production has been estimated at approximately 5,000 tons, and 1928–29 production was low, believed to have been less than 4,000 tons During 1929–30 an unusually large crop of lemons and unsatisfactory sales of the fresh fruit have combined to turn more lemons to the by-products industry Consequently, production of citrate of lime has been the heaviest for many years and is estimated at between 8,000 and 9,000 tons At the same time, deliveries of citrate of lime by the Camera Agrumaria up to the middle of March, 1930, totaled only 2,300 tons, as against 4,900 tons up to March 15, 1929 At the beginning of this season the Camera Agrumaria set the sales price of citrate of lime at 700 lire per quintal During the season the price has been twice reduced and was fixed last month at 450 lire Even at this price the Camera has heavy accumulations of stocks in its warehouses The heaviness of the market is attributed to a number of factors which have reduced the demand for citric acid The high price of citric acid has turned consumption toward the lower-priced tartaric acid, and at the same time synthetic citric acid is offering growing competition to the natural product

The 1929 export figures for citrate of lime include only one month's shipments of this season's production (December) Exports during 1929 totaled 2,284 tons, as compared with 1,627 tons in 1928 and 3,106 tons in 1927 During 1929 Great Britain and France were the chief foreign consumers, Great Britain taking 51 per cent and France 40 per cent of total exports

Production of citric acid reached its highest point in 1925, with an output of 3,170 tons After that year the industry found itself in difficulties, and production declined to 1,950 tons in 1926 and 1,720 tons in 1927 The production figure for 1928 reflects the benefit the industry has derived under its new organization, and the output during that year is estimated as high as 3,000 tons Production figures for 1929 are not available, but it is believed that production was considerably lower than in 1928, owing to the decline in consumption.

Since 1928 citric acid has been marketed through a central sales comptoir known as the C I F A C (Consorzio Italiano Fabbriche Acido Citrico). The export trade also bears witness to the improvement in the industry, having totaled 3,338 tons in 1928 as against 1,982 tons in 1927. Notable increases were made in sales to Germany, Great Britain, and France, the principal markets. Exports to South America and the Far East also improved. During 1929, however, exports declined to 2,810 tons. The balance sheet of the Arenella Co. for 1929 showed a net profit of 3,462,284 lire, from which a 12 per cent dividend was distributed. This is the first report from the Arenella since the reorganization of the company and the formation of the citric-acid consortium. During the five preceding years the company had operated at a loss, and no dividend had been distributed since 1922.

The Italian citric-acid manufacturers regard future competition from synthetic citric acid as the most serious menace which threatens the industry and are working actively to convince consumers of the superiority of the natural product. They realize, however, that the deciding factor will be ultimately a question of price, and they are, therefore, looking to their production costs, and at the same time they are asking for greater tariff protection in order to forestall competition from the synthetic product on the home market.

EXPORTS OF CITRIC ACID FROM ITALY

[In metric tons]

Country of destination	1929	1928	1927	Country of destination	1929	1928	1927
Germany	402	604	312	Other South American countries	128	86	56
Great Britain	594	549	262	United States and Canada	21	46	63
France	447	520	255	Far East	34	69	38
Netherlands	195	199	201	Other countries	177	232	115
Russia	142	154	102	Total	2,810	3,338	1,982
Spain	129	144	135				
Other European countries	314	390	220				
Argentina	227	345	223				

ESSENTIAL OILS

Production and exportation of essential oils of citrus fruits is, after sales of the fresh fruit, one of the most valuable Sicilian industries. In the order of their importance, the oils are lemon, orange, bergamot, and mandarin. Formerly these essential oils were all pressed by hand, but the introduction of machinery in recent years has brought about a fundamental change in the industry, until to-day about 50 per cent of total production of Sicilian essential oils is machine pressed. Hand-pressed oils are superior in quality to the machine-pressed oil, but the cost of production is higher, and Sicilian exporters have found that few buyers are willing to pay the price of a hand-pressed oil when a machine-pressed oil can be bought at a much lower price, and, while inferior to the true hand-pressed oil, it will answer the same purpose and pass the tests of the pharmacopœias of the various countries equally well. Adulteration is freely practiced and renders the task of estimating actual production of true essential oils particularly difficult.

Unfortunately, no official production figures are available later than 1925–26 and then only for oil of lemon and bergamot. Later production figures must be regarded as little more than well-informed guesswork. In 1925–26, 570,830 kilos of lemon oil and 100,700 kilos of bergamot oil were produced. The 1928–29 lemon crop was poor, and production of lemon oil was below normal. That of bergamot oil was high, and, in addition, the season opened with heavy stocks of this latter oil. Owing to the abundant crop of lemons and the slack demand for the fresh fruit, production of lemon oil during the 1929–30 season is estimated at more than double the 1928–29 production. The carry-over of lemon oil from last year was small, but abundant offers of this year's oil have been reflected in the falling market.

The situation with regard to oil of bergamot is critical. There was a heavy carry-over from the 1928–29 season and an abundant production during the current year. Producers have invoked Government intervention. A recent Government decree has made obligatory the organization of producers into a central sales consortium and the delivery of all oil of bergamot to a central warehouse.

The best available estimates of production of various oils are given below.

ESTIMATED ITALIAN PRODUCTION OF ESSENTIAL OILS

[In kilos]

Kind	1929–30	1928–29	1927–28
Lemon	1,043,000	450,000	570,000
Bergamot	150,000	91,000	(1)
Orange, sweet	114,000	136,000	136,000
Orange, bitter	(1)	5,000	5,000
Mandarin	(1)	5,000	5,000

[1] No figure available.

It must be remembered, however, that the above figures are nothing more than trade estimates and can lay little claim to accuracy.

Exports of citrus oils declined during 1929 as compared with 1928, but were slightly above the 1927 level. Sales abroad of lemon oil registered a falling off of 11 per cent, orange oil an increase of 12 per cent, exports of oil of bergamot made a slight gain. The United States and Great Britain were Italy's best markets, followed by France and Germany. Sales to the United States were the lowest in four years.

EXPORTS OF CITRUS OILS FROM ITALY

[In kilos]

Kind	1929	1928	1927
Orange	146,206	130,235	137,696
Bergamot	188,122	187,044	172,193
Lemon	555,330	628,002	571,416
Mandarin	6,271	8,212	8,762
Other	1,013	5,238	4,937
Total	896,942	958,731	895,004

DESTINATION OF ITALIAN EXPORTS OF CITRUS OILS

[In kilos]

Country	1929	1928	1927
United States	244,063	299,156	249,798
Great Britain	244,138	234,199	228,635
France	176,945	153,776	127,306
Germany	100,033	116,228	108,576
Netherlands	34,259	31,328	29,607
Russia	8,174	23,292	12,700
Spain	13,909	14,486	17,051
Switzerland	10,226	7,001	11,875
Other European countries	10,822	11,489	19,888
Australia	14,549	19,108	28,614
India and Japan	6,970	10,005	6,646
Argentina	11,188	7,638	15,273
Canada	10,358	9,896	11,473
Other countries	11,308	21,129	37,562
Total	896,942	958,731	895,004

The preparation of essential oils other than those of citrus fruits is of comparatively little importance in Italy. Peppermint oil and lavender oil may be mentioned. Production of peppermint oil is estimated at approximately 25,000 kilos in 1929 and oil of lavender at 7,000 kilos. Both the peppermint and lavender oil industries have been in difficulties during the past year. The peppermint-oil industry, particularly, has suffered from overproduction, and the reputation of the Italian oil has been damaged by the practice of adulterating with Japanese oil. In order to keep the Japanese oil out of the market, the duty on oil of peppermint has recently been increased. The industry is now being reorganized, and an important French group is said to have acquired the controlling interest in the principal Italian distilleries. The distillation of flower oils is as yet little developed in Italy, but a young industry, growing up along the Italian Riviera and in northern Sicily, promises well for the future.

In 1929 Italy exported only 15,113 kilos of peppermint oil, as compared with 39,863 kilos in 1928 and 28,600 kilos in 1927. Exports of all other essential oils totaled 15,043 kilos in 1929, 16,794 kilos in 1928, and 21,359 kilos in 1927.

Imports of essential oils, which totaled 104,293 kilos in 1929 as against 76,839 kilos in 1928 and 49,580 kilos in 1927, consist chiefly of French flower essences consumed by the important Italian soap and perfumery industries.

GLYCERIN

Italian production of crude glycerine, 2,895 tons in 1927, the most recent production figure available, is made up largely of dark glycerin obtained from vegetable fats. In the same year 1,680 tons of refined gyclerin was also produced. Crude-glycerin production is practically a monopoly of the Mira-Lanza Co. When prices are right, Italian distillers prefer the clear crude obtained from animal fats. There is, therefore, a considerable importation of this latter product, while the domestic dark glycerin is exported. Italian distillers are equipped to produce sufficient refined glycerin to cover the country's needs, but when prices permit, Italy also offers a market to imported refined glycerin. Imports were 255 tons of refined and 439 tons of crude in 1927, 256 tons and 748 tons in 1928, and 115 tons and 1,144 tons in 1929. Exports were 64 tons of refined and 367 tons of crude in 1927, 16 tons and 353 tons in 1928, and 302 tons and 368 tons in 1929.

DRUGS AND MEDICINAL, PHARMACEUTICAL, AND TOILET PREPARATIONS

CRUDE DRUGS AND BOTANICALS

Italy imports cassia, tamarind, natural camphor, and a number of miscellaneous exotic medicinal plants On the other hand, the country is an important source of supply for sumac, licorice root, manna, red squill, and other unspecified crude drugs and botanicals There is also an important export trade in crude and concentrated lemon, citron, and licorice juice Production figures are not available, but exports of these products during the past three years have been as follows

EXPORTS OF CRUDE DRUGS AND BOTANICALS FROM ITALY

[In metric tons]

Kind	1929	1928	1927	Kind	1929	1928	1927
Sumac				Lemon and citron juice			
Ground	8,977	11,793	12,301	Crude	4,599	2,714	2,480
Not ground	3,975	3,790	3,554	Concentrated	43	382	584
Licorice root	868	1,473	1,276	Licorice juice	950	825	854
Manna	138	243	153	Unspecified botanicals	2,462	2,641	2,340

With Government encouragement, efforts are being made to organize the Italian crude drug and botanicals trade on a more economic basis The resources of the country in wild and cultivated botanicals are now under review, and steps will be taken to extend cultivated areas, where possible, to increase the yield of wild botanicals by cultivation and, where cultivation is not practicable, to introduce better gathering and trading methods

The manufacture of synthetic camphor was begun in Italy in 1925 By 1927 production had reached 90 tons with a plant capacity of 360 tons Figures for 1929 are not available, but production may be estimated at 100 to 150 tons This young industry is favored by the fact that the turpentine imported for its preparation is exempt from duty The bulk of the output is exported, and practically the total exports have been taken by the United States

MEDICINAL AND PHARMACEUTICAL PREPARATIONS

Italy has a well-rounded industry for the preparation of medicinal specialties and pharmaceutical products The home market is a large one, as it is the custom among the poorer classes to go to the nearest pharmacy and buy a remedy recommended by the pharmacist and thus avoid, where possible, the expense of a doctor's visit. For this reason the laws governing the sale of medicinal products are particularly strict in Italy, and these preparations can be sold only through a licensed pharmacy Exports of pharmaceutical preparations and medicinal specialties are almost four times the imports Nevertheless, imports of these products are far from negligible, and Italy offers an attractive market for recognized American proprietary medicines Their importation, however, is rendered difficult by the strict surveillance that is maintained over the sale of these products and the complicated regulations that must be observed by importers, involving registration of each product, printing of the formula, payment of a registration and yearly tax, import permits, etc.

Italy has recently succeeded in opening up new sources for several chemicals of immediate interest to the chemico-pharmaceutical industry These are iodine, quinine, and bromine The Regie Terme di Salsomaggiore has developed a process for extracting iodine from the brine waters of the mineral springs at Salsomaggiore, which should make the country independent of imported iodine A plant has been erected and is now producing 1 quintal of pure iodine per day, with a capacity of double that amount. The import duty on iodine has been increased a hundredfold to protect the young industry and a consortium has been formed for the development of the industry which includes the Italian Government and two of the strongest Italian manufacturers of fine chemicals

Quinine is produced in Italy in a Government plant, and the Government has acquired cinchona plantations in Java and made arrangements to receive the necessary supplies of cinchona bark direct from its own plantations, thus acquiring independence of supplies controlled by the Dutch monopoly

During 1929 the Soc Italiana del Bromo completed its plants for the extraction of bromine from the salt pans at Margherita di Savoia near Foggia, and reached an initial production of 20 tons of bromine annually This amount is more than sufficient to cover domestic needs Protection was afforded the young industry in the form of a sixtyfold increase in the import duty on bromine and a 150 per cent increase on bromides

PERFUMERY AND TOILET PREPARATIONS

The Italian perfume industry is based largely on imported natural and synthetic perfume materials It has already been stated that the natural flower essences come chiefly from the French Riviera. Imports of synthetic aromatic chemicals and essences for flavoring extracts totaled 118 tons in 1929, as compared with 102 tons in 1928 and 98 tons in 1927 Exports are unimportant.

There is one Italian company manufacturing synthetic aromatic chemicals, the Industrie Chimiche Meridionali, with a plant at Naples During 1928 this company amalgamated with the Soc Italo-Francese di Vallerossa, the principal Italian distillers of flower essences The industry, which has been in financial straits, is undergoing a reorganization with an influx of new capital, it plans to develop both the manufacture of natural and synthetic perfume materials Up to the present however, the actual output has been small

Italy offers an attractive market for finished perfumes, cosmetics, and toilet preparations France is the chief source of supply for these products, and while it is still difficult for American manufacturers to overcome the prestige which French perfumes and face powders carry among consumers, there is a growing demand for certain American specialties in face creams, dentifrices, and toilet preparations. Imports of these products, including perfumes, totaled 446 tons in 1929, 465 tons in 1928, and 352 tons in 1927 France supplying 80 per cent of the total

Italy manufactures approximately 150,000 tons of soap annually Imports, ranging from 3,500 to 4,000 tons, are slightly in excess of exports and are made up largely by the olive-oil soap, known as

"Marseilles," from France In addition to the bulk of common soap, there is a small but constant importation of toilet soaps from England, France, and Germany In this line the United States also has a small share of the trade, which is susceptible of further development One well-known American brand of toilet soap and one or two standard American brands of soap flakes are now manufactured in Italy, as well as the English soap flakes, Lux

PIGMENTS, PAINTS, AND VARNISHES

Italy has important deposits of mineral-earth pigments, the most important of which are yellow and red ochres and green earths The yellow ochre is calcined and forms the commercial pigment, burnt sienna Verona green is likewise much sought after Total yield of these colored earths is estimated at 8,395 tons in 1929, as comparaed with 8,260 tons in 1928 and 7,061 tons in 1927 These colored earths find a ready market abroad, and exports totaled 4,451 tons in 1929, 4,141 tons in 1928, and 3,577 tons in 1927 Italy also imports those colored earths in which the country is deficient

Italian production of chemical pigments totaled 17,172 tons in 1927. Later production figures are not available Chief among these are litharge and red lead, zinc white, white lead, and lithopone The tendency to use zinc white instead of white lead is becoming more and more marked Production of white lead is on the decline, while that of zinc white is continually increasing In addition to domestic production, zinc white is imported, and there is a good market for it The majority holdings in the one company manufacturing lithopone have passed to the Montecatini group in 1929, and an increased output of this pigment may be looked for. In fact, imports of lithopone declined from 2,606 tons in 1927 to 1,882 tons in 1928 and 2,091 tons in 1929 The manufacture of titanium white was begun in Italy in 1927 Interest in this pigment among consumers is increasing, and the output is growing from year to year The plants at Bovisa, belonging to the Società Anon. Titanium, also a member of the Montecatini group, have recently been expanded, and a small exportation of titanium white has been made There were 247 tons of titanium oxide produced at Bovisa in 1927, later production figures are not available Italy is dependent on foreign sources of supply for more than half its consumption of lamp black The A C N A is now beginning to develop on an industrial scale the patents of Ing Longhi for the production of acetylene and lamp black by treating mineral oils by the arc process

ITALIAN PRODUCTION OF PIGMENTS

[In metric tons]

Kind	1927	1926	Kind	1927	1926
Lithopone	2 230	3,600	Lampblack	880	920
White lead	2,580	3,420	Vermilion	230	250
Zinc white	5,360	4 920	Chrome green	170	73
Blanc fixe	890	850	Schweinfurth green	75	30
Parisian and Prussian blue	19	11	Italian and English green	120	180
Mercuric sulphide	27	42	Titanium oxide	247	------
Chromium yellow	120	140			
Zinc yellow	21	40	Total	17,199	20,946
Litharge and red lead	4,230	6,470			

ITALIAN FOREIGN TRADE IN COLORED EARTHS AND PIGMENTS

[In metric tons]

Kind	1929		1928		1927	
	Imports	Exports	Imports	Exports	Imports	Exports
Mineral earth pigments	2,798	4,451	3,251	4,141	2,509	3,517
Chemical pigments	5,372	1,871	4,451	1,677	5,260	2,868
Ultramarine	250	117	232	207	199	233
Lampblack	2,399	8	1,796	23	1,599	6

Consumption of house paints mixed in oil is relatively low in Italy owing to the type of construction peculiar to the country. Brick, plaster, and natural stone are the materials most widely employed. These buildings, if painted at all, are washed with cold-water paints. Consumption of special industrial paints and better-grade indoor paints and enamels is growing. Large quantities of such paints are imported. The domestic manufacture of the cheaper paints is well developed, and a steadily growing export trade is done in these paints. Both imports and exports of paints increased during 1929 as compared with the two preceding years.

In the item of varnishes, the country is on an importing basis. Consumption and imports of varnishes are steadily increasing, and the United States enjoys a fair share of the trade, almost one-third of total imports having originated in the United States in 1929. During 1929 attention was concentrated on pyroxylin lacquers, which are coming more and more into favor, and about one-half of varnish imports is made up of pyroxylin lacquers. The market continued to expand, with keen competition between domestically manufactured lacquers and the imported products, particularly those originating in the United States. Domestic manufacturers are not yet well organized, and those making a quality product were unable to bring their prices down to those of imported lacquers in spite of the protective tariff. On the other hand, a number of small manufacturers sprang up, who threw inferior goods on the market at cut prices. Thus the market was in a disorganized condition, and trading conditions were difficult.

The following table shows the import and export movement of paints, varnishes, and allied products during 1929, 1928, and 1927.

ITALIAN FOREIGN TRADE IN PAINTS, VARNISHES, AND ALLIED PRODUCTS

[In metric tons]

Kind	1929		1928		1927	
	Exports	Imports	Exprots	Imports	Exports	Imports
Paints in powder, paste, or oil	787	1,644	747	1,114	606	957
Varnishes	1,779	417	1,575	450	1,258	399
Leather creams and polishes	154	60	175	56	192	59
Specialties for household use	421	42	361	89	270	58

MISCELLANEOUS

NAVAL STORES

Having no naval-stores industry of its own, Italy is entirely dependent on imports for its supplies of turpentine and resin Imports of turpentine increased from 4,876 tons in 1927 and 5,459 tons in 1928 to 6,054 tons in 1929 The bulk of these purchases comes from France, followed by Spain as a source of supply The United States enjoys but a relatively small share of the trade, owing to the expense and difficulties connected with the shipment of turpentine overseas as compared with the overland route in tank cars The United States supplied 162 tons of turpentine in 1929 against 255 tons in 1928 Most of this comes down from north European ports by rail

In the item of resin, on the other hand, the United States supplies almost one-third of total imports Total takings of resin declined from 25,715 tons in 1928 to 23,518 tons in 1929, of which the United States supplied 7,095 tons against 6,132 tons in 1928

PLASTIC AND SYNTHETIC RESINS

Italian production of pyroxylin and casein plastics and synthetic resins, while increasing, is not sufficient to cover domestic needs There is only one Italian company manufacturing celluloid In 1928 it became associated with an American concern Seventy-five per cent of its output is used by Italian manufacturers of combs, automobiles, umbrella handles, etc , while the remaining 25 per cent goes toward a small but growing export trade The capacity of the plants is about 1,200 tons annually, but in 1929 the company was not able to operate at more than two-thirds capacity, owing to competition from imported German celluloid

A number of casein plastics, going under the trade names of "Proteolite," "Zoolite," and "Galakerite," are manufactured

Imports of plastics and synthetic resins totaled 860 tons in 1929, against 598 tons in 1928 and 483 tons in 1927 The bulk of this material comes from Germany America's share of the import trade in 1929 was less than 5 per cent of the total

EXPLOSIVES

In 1929, 7,055 tons of gun powder were manufactured in Italy as against 7,190 tons in 1928, blasting powder 1,936 tons as against 2,536 tons in 1928, and all other explosives, consisting chiefly of dynamite, ballistite, T N T, cheddite, smokeless powder, and promethic, some 8,000 tons. There has been a noticeable increase in the output of dynamite and T. N T within the past two years.

APPENDIX

Montecatini and Subsidiary Companies

Company	Location	Capital *Lire*	Production
"Montecatini," Soc Generale per l'Industria Mineraria ed Agricola	Milan	500,000,000	Mines—sulphur, pyrite, lead, zinc, copper, lignite, chemicals—sulphuric, hydrochloric, nitric, carbonic acids, sulphates, sulphites, and silicates, superphosphates, copper sulphite, gypsum, horn, hoof, and leather meal
SUBSIDIARIES			
Soc Solfifera Siciliana	Milan	3,200,000	Sulphur mines
Unione Raffinerie Siciliane	Catania	6,000,000	Do
Soc Utilizzazione Zolfi	Milan		Sulphur refining
Soc Italiana Ammonia	do	150,000,000	Synthetic ammonia, ammonium sulphate
Soc Meridionale Ammonia	do	40,000,000	Synthetic ammonia, ammonium sulphate, and nitric acid
Soc Alto Adige Ammonia	do	40,000,000	Synthetic ammonia, nitric acid, ammonium nitrate and sulphate, calcium nitrate
Soc Sarda Ammonia	Rome	25,000,000	Synthetic ammonia, nitric acid, sulphuric acid, superphosphates
Soc Piemontese Ammonia	Milan	8,000,000	Synthetic ammonia, nitric acid, ammonium sulphate
Soc Italiana Prodotti Azotati	do	20,000,000	Calcium cyanamide, calcium carbide
Sclopis & C	Turin	8,000,000	Pyrites, superphosphates, hydrochloric, nitric, and sulphuric acid sodium sulphate, bicarbonate, bisulphate, bisulphite, hyposulphite
Soc Anon Ollomont	do	7,500,000	Sulphuric acid, copper sulphate, sodium bisulphate, electrolytic tin
Fabbriche Riunite Agricoltori Italiani	Milan	4,500,000	Sulphuric acid, superphosphates, bone glue, bone grease, bone meal, bone phosphates, soap
Soc Italiana Consumatori Esplosivi	do	9,000,000	Dynamite, dynamite gelatin
Soc Esplodenti e Prodotti Chimici	do	13,800,000	Nitric acid, explosives
Soc Italiana Dinamite Nobel	Turin	10,560,000	Nitric acid, dynamite, gunpowder, guncotton, balestite, nitroglycerin
Soc Solfuro di Carbonio	Milan	4,000,000	Carbon sulphide
Soc Anon Elettrochimica del Toce	do	1,000,000	Calcium carbide, acetic anhydride, acetic acid, acetone, solvents, cellulose acetate
Soc Italiana Duco	do		Nitrocellulose lacquers
Soc Anon Italiana del Litopone	do	3,000,000	Lithopone
Soc Anon Titanium	do		Titanium white
Soc Rhodiaseta Italiana	do		Cellulose acetate rayon
Soc Italiana dell'Alluminio	do	50,000,000	Alumina, Aluminium
Soc Italiana Allumina	do		Alumina
Soc Marmifera Nord Carrara	do	25,000,000	Marble
Soc Jutificio di Spezia	do	6,000,000	Sacking
Fabbriche Lombarde Olii e Grassi Lubrificanti	do		Oils and fats
Soc Sbarchi, Imbarchi e Trasporti	do	2,500,000	Transportation
Soc Industriale Ferroviaria	do	1,000,000	Do
Soc Elettrica Alto Adige	do	30,000,000	Electric power
Soc Meridionale per lo Sviluppo dell Industria e Agricoltura	Rome	12,000,000	Financing

U. S. DEPARTMENT OF COMMERCE
R P LAMONT, Secretary
BUREAU OF FOREIGN AND DOMESTIC COMMERCE
WILLIAM L. COOPER, Director

FINANCIAL DEVELOPMENTS IN LATIN AMERICA DURING 1929

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FOREWORD

As capital-importing nations and producers of foodstuffs and raw materials, the countries of Latin America in general were adversely affected by the high-money rates which prevailed in world financial centers during the greater part of 1929 and by the decline in commodity prices that occurred in the closing months of 1929 and continued into 1930 Government borrowings abroad declined sharply as a result of either high-money rates in the world financial centers or adverse economic and financial developments in the borrowing countries themselves In addition to causing fiscal difficulties in several countries that had embarked on rather extensive public works, the marked decline in borrowings from abroad had an adverse influence on business and exchange

The slump in commodity prices has been particularly trying to most of the Latin American countries This is due to the direct dependence of their prosperity on the market for a number of staple commodities of world trade The severe decline in the price of coffee has had an especially adverse effect, for coffee is dominant in the economic life of Brazil, Colombia, most of the Central American countries, and Haiti Sugar prices, already depressed, declined further, lower prices developed also for tin, wool, hides, silver, cotton, cacao, cereals, copper, and other important products of the various Latin American countries

Largely as a result of the foregoing events, financial developments in Latin America during 1929 and in the early part of 1930 have generally compared unfavorably with those of 1928 As is invariably the case, however, certain exceptions to general trends occurred

The manuscript was prepared by Eugene W Cheviaux, of the Finance and Investment Division, under the direction of Ray Hall, acting chief of the division It is based on reports submitted by field officers of the department of Commerce and the Department of State and on various official and unofficial publications The Finance and Investment Division keeps in close touch with Latin American financial conditions, and more detailed information on recent financial developments will be made available on specific request

WILLIAM L COOPER, *Director*,
Bureau of Foreign and Domestic Commerce

AUGUST, 1930

FINANCIAL DEVELOPMENTS IN LATIN AMERICA DURING 1929

By Eugene W Chevraux, Finance and Investment Division

ARGENTINA

Although the outlook at the beginning of 1929 seemed promising, economic and financial conditions in Argentina during that year compared unfavorably with those of 1928 Lower prices for a number of leading export products were chiefly responsible for a decline of about 9 6 per cent in the value of Argentine exports, according to preliminary figures There was also an almost complete cessation of Government borrowings abroad These factors were reflected in a steady decline of the peso, despite large gold exports. The heavy outward gold movement finally resulted in the promulgation of a decree on December 16 suspending gold payments by the Caja de Conversion Argentina thus went off the gold standard, which had been resumed in August, 1927

An outstanding development of the latter part of 1929 was the drawing up of an agreement between the British and Argentine Governments whereby each Government agreed to open a credit in favor of the other up to 100,000,000 paper pesos (1 paper peso equals $0 4245 at par) for a period of two years from the date of the agreement These credits were to be used for the purchase of Argentine produce by the British Government and for the acquisition of British manufactures by the Argentine Government At the end of the year, however, this agreement had not been approved by the Argentine Senate

GOVERNMENT FINANCES

The national budget for 1929 authorized ordinary expenditures totaling more than 704,000 000 paper pesos Additional expenditures for public works and subsidies were to be made from the proceeds of bond issues and special funds, respectively Complete actual financial results for 1929 are not yet available According to preliminary unofficial figures however, Buenos Aires customs receipts and port dues (the most important single source of governmental income) declined about 1 7 per cent in 1929 On the other hand, internal taxes on tobacco, alcohol, etc, increased about 5 per cent; and property taxes, licenses, and stamped paper increased about 2 1 per cent

In a message accompanying the budget proposal for 1930, the president stated that the cash movement of the general treasury from October 12, 1928, to October 31, 1929, was as follows:

	Paper pesos
Balance of general revenue on hand	18, 255, 881
Revenue from different sources	873, 884, 889
Total	892, 140, 770
Paid by the Government for salaries and expenses provided for in the budget, public-debt services amortization and interest, special accounts advances for public-works account to the state railways port of the capital sanitary works, national council of education municipalities etc	891, 872, 148
Balance, Oct. 31 1929	[1] 268, 662

The President then stated that—

> Throughout this period the salaries of the administrative staffs have been kept up to date. The sum of 5,744 118 pesos taken without authorization from the public works fund, has been returned. The public debts (internal and foreign) have been reduced by more than 60 000,000 pesos. Interest and amortization services on these debts have been met to a total of 185 874,204 pesos. The floating debt has been reduced by 9,372 490 pesos, and, finally, the following payments have been effected by means of advances out of general revenue for debts not covered by the budget:

	Paper pesos
Public-works account	94, 140, 248
State railway account	2, 952, 003
Port of capital (Law 5944)	2, 737, 903
Total	99, 830, 154

The budget proposal for 1930 was not presented until the latter part of December. In view of the delay in submitting a budget project, the President proposed that the 1929 budget be extended into 1930 without substantial modification. This proposal was passed by Congress later.

No long-term external loans were floated by either the national or local governments during the year. At the end of December, however, the Government obtained a 1-year loan of £5,000,000 from English bankers. Public offering of Argentine Government securities in the United States during 1929 was confined to a 1-year loan of $1,500,000 to the Province of Santa Fe.

Government contractors complained at times during the year of the slow payment of Government bills. In the message accompanying the budget proposal for 1930, the President stated that maturing obligations which had been left by the former administration and for which no provision had been made totaled 55,452 212 paper pesos on October 12, 1928. This figure did not include a general treasury deficit of 5,744,118 paper pesos. The President further stated that at that time—

> The Government also found itself faced with an enormous floating debt, composed chiefly of overdue obligations to contractors for the supply of materials etc., and public-works certificates which had remained unpaid. Faced with the alternative of going to Congress to ask for funds required, or meeting them, as far as possible, out of general revenue, the latter course was adopted in order to avoid unnecessary inconvenience and damage to the interest of the nation's creditors. By the means described the administration has been meeting these obligations as circumstances permitted.

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[1] The slight discrepancy existing in this figure was not explained.

CURRENCY AND EXCHANGE

Currency and exchange developments attained unusual importance during 1929, particularly in view of the suspension of gold payments by the Caja de Conversion near the close of the year. Despite large gold exports, the exchange value of the peso declined rather steadily during 1929, exchange quotations of the gold peso dropping from a monthly average of $0.9576[2] in January to $0.9300 in December. As previously indicated, the weakening of the peso reflected the decline in the value of Argentine exports and in the volume of its foreign borrowings.

As a result of the exchange decline, gold exports during 1929 totaled 174,398,000 gold pesos, as compared with net gold imports of 87,088,970 gold pesos in 1928. As the Banco de la Nacion had accumulated large gold holdings during the heavy gold import movement of 1927–28, gold exports were made without greatly reducing the gold holdings of the Caja de Conversion until the last quarter of the year. As a result of these withdrawals, gold holdings of the Caja de Conversion declined from 489,657,138 gold pesos at the end of 1928 to 419,643,387 gold pesos on December 16, 1929. At this juncture the President issued a decree suspending the delivery of gold for paper currency by the Caja de Conversion. Argentine currency thus reverted to the inconvertible status which had prevailed from August, 1914, to August, 1927.

The decree suspending gold payments by the Caja de Conversion was received with surprise in many quarters, because, despite the withdrawals, gold holdings of the Caja de Conversion on December 16, 1929, were only about 36,000,000 gold pesos less than when gold payments were resumed in August, 1927, and because the gold reserve ratio against note circulation on December 16, 1929, after including the conversion fund of 30,000,000 gold pesos held in the Banco de la Nacion, was still nearly 82 per cent. Owing to the inelastic character of the Argentine currency system, however, the withdrawals of gold from the Caja de Conversion resulted in an automatic contraction of the note circulation from 1,405,875,000 paper pesos at the end of 1928 to 1,246,753,000 paper pesos on December 16, 1929.

This contraction of the note circulation, which had been continuing in the face of heavy seasonal money requirements, was arrested by the suspension of gold payments by the Caja de Conversion. Previously (December 5) a decree had been issued authorizing the Banco de la Nacion to rediscount commercial paper at the Caja de Conversion up to 200,000,000 paper pesos. It is understood, however, that this authorization was not used. Shortly after the end of the year (January 15, 1930) a decree was promulgated authorizing the issuance of notes against the deposit of gold in Argentine legations abroad. This resulted in a small recovery in the note circulation.

BANKING, MONEY, AND CREDIT

Buenos Aires bank clearings increased from 40,528,000,000 paper pesos in 1928 to 40,891,000,000 paper pesos in 1929, although clearings in the last quarter of the year were below those of the last quarter of 1928 Interior bank clearings also increased from 7,596,800 000 paper pesos in 1928 to 8,115,900,000 paper pesos in 1929, despite the decline in the last quarter

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[2] Noon-buying rate for cable transfers in New York as reported by the Federal Reserve Bulletin.

Banking operations in 1929 were characterized by an increase in discounts and advances and by a decline in deposits and cash holdings Money tightened during 1929, particularly in the closing months of the year, as a result of the heavy gold exports and the contraction of the note circulation In October the Banco de la Nacion raised its rate for advances in current account from 6½ to 7½ per cent At the same time the rate for documented credits was raised from 6 per cent to 7 per cent At the end of December banks were paying from 5½ to 6 per cent for three months' deposits and from 5½ to 6½ per cent for deposits of six months or longer These rates contrast with those of 4 to 4¼ per cent for three months' deposits and 4¾ to 5¼ per cent for six months' deposits at the end of 1928 Discount rates of the banks varied between 7 and 8½ per cent at the end of 1929

Bankruptcies were greater than in 1928 but less than in 1927, liabilities totaling 166,852,900 paper pesos in 1929 as compared with 147,424,900 paper pesos in 1928 and 198,465,700 paper pesos in 1927. As might be expected in view of the money tightness, market quotations of Government bonds and mortgage cedulas at the end of 1929 were somewhat below those prevailing at the end of 1928

BOLIVIA

Among the outstanding financial developments in Bolivia during 1929 were those incident to the putting into effect of a number of the recommendations which the Kemmerer Commission made during its visit to Bolivia in 1927 It will be remembered that in July, 1928, the President signed a general banking law and laws providing for monetary reform and for the reorganization of the Banco de la Nacion Boliviana as a central bank, along the lines recommended by the commission These laws did not go into effect in that year, however, but were suspended by a decree of August 20, 1928, and by a law of February 6, 1929, inasmuch as the transformation of the Banco de la Nacion Boliviana into the Banco Central had not been effected This transformation was approved by the stockholders on April 30, 1929, and the Central Bank began operations on July 1, 1929. The laws on the monetary reform and the general banking law were also put into effect during the year.

The ordinary budget for 1929 calculated revenues and expenditures at 46,983,672 bolivianos (1 boliviano equals $0 365 at par) and 46,927,458 bolivianos, respectively. These totals do not include revenues from special sources nor expenditures for the service of the indirect debt of 3,763,945 bolivianos each The principal items of budgeted expenditures were those for the service of the public debt, amounting to 18,258,637 bolivianos, and the expenditures of the Department of War, amounting to 9,160,569 bolivianos. In a report to Congress of July, 1929, the Minister of Finance stated that a considerable deficit was being incurred in working out the budget for 1929, which might amount to around 5,000,000 bolivianos if the low price of tin continued.

Among the important administrative changes of the year was the assumption of the administration of the custom houses by the National Revenue Collecting Co on January 1, 1929 Previously (November 1, 1928) this company took over from the Direccion General de la Renta the collection of the internal taxes as well as the collection of the alcohol and liquor taxes, formerly administered by the Compañia de Recaudacion General

Although certain authorizations for loans were in effect during 1929, none was floated abroad during the year The service of interest and amortization of the external debt was regularly effected during 1929, but it is understood that service of the internal debt was in arrears It is also understood that some government salaries were in arrears at times during 1929

At the end of the first six months of operation (December 31, 1929), the note circulation of the Banco Central had declined from 45,000,000 bolivianos to 42,500,000 bolivianos During the same time deposits declined from 19,400,000 bolivianos to 17,900,000 bolivianos Cash increased from 27,300,000 bolivianos to 36,300,000 bolivianos, while deposits abroad declined from 32,300,000 to 20,700,000 bolivianos The bank's portfolio declined from 25,800,000 to 21,600,000 bolivianos The discount rates of the Banco Central to banks and to the public for 30-day paper was 7 and 8 per cent, respectively The rates for 90-day paper were 8 and 9 per cent, respectively

The stricter requirements of the new banking laws put into effect during the year tended to make the position of many small merchants difficult Commercial failures, however, were reported to have been fewer than during the previous year.

In the latter part of the year the La Paz branch of a German bank and the banking section of an American importing and exporting firm were closed

Although at the end of the year exchange was somewhat below the par value established by the new monetary law (approximately $0 365 United States at par), no wide fluctuations occurred The Banco Central was quite successful in maintaining exchange stability

BRAZIL

In view of the overwhelming importance of coffee in the economic and financial life of Brazil, the break in coffee prices that occurred in October, 1929, overshadowed all other financial happenings of the year. As a result, the restriction of credit and numerous bankruptcies that marked the early months of 1929 became still more serious, the exchange value of the milreis weakened noticeably in December, and the closing months of the year were characterized by acute business depression and uncertainty By May, 1930, however, exchange had strengthened to the extent that it was only slightly below the stabilization rate This firming up of exchange after the turn of the year reflected, at least in part, heavy gold exports. However, in June, 1930, exchange again weakened somewhat One of the outstanding financial developments thus far in 1930 has been the flotation of a loan of £20,000,000 [3] in the United States and Europe by the State of Sao Paulo Under the terms of the loan contract the State of Sao Paulo will liquidate existing stocks of coffee over a maximum period of 10 years and will market future crops currently.

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[3] The Banco do Estado de Sao Paulo contracted to purchase £2,807,973 of the total offering

GOVERNMENT FINANCE

According to the President's message to Congress of May 3, 1930, budgetary revenues during 1929 totaled 2,399,600 contos,[4] an increase of 188,829 contos over budget estimates and of 183,087 contos over actual budgetary revenues in 1928 The President also reported that budgetary expenditures totaled 2,017,694 contos and that expenditures designated as "extra budgetary" totaled 206,923 contos, a balance of 174,983 contos thus resulting These figures do not include certain other accounts, such as special funds, credit operations, etc It should be noted, moreover, that revenues include the surplus of the previous year, amounting to 198,354 contos. Near the end of the year the budget for 1930 was signed, calculating revenues and expenditures at 2,281,505 contos and 2,256,176 contos, respectively

The external debt of the National Government was reduced by £2,682,858, $4,797,147, and 1,814,907 francs during the year, as shown in the following comparison of the amounts outstanding at the end of 1928 and 1929

REDUCTION OF BRAZILIAN EXTERNAL DEBT

Date	Pounds sterling	Dollars	Francs
Dec 31, 1928	106, 968, 593	152, 800, 427	333, 577, 086
Dec 31, 1929	104, 285, 735	148, 003, 280	331, 762, 179
Decrease	2, 682, 858	4, 797, 147	1, 814, 907

The internal funded debt at the end of 1929 totaled 2,381,292 contos as compared with 2,392,746 contos at the end of 1928, a reduction of 11,454 contos during the year An important development of the year with respect to the external debt was the decision of the Permanent Court of International Justice at The Hague to the effect that Brazil would have to pay the principal and interest of three outstanding disputed franc loans, that had been submitted to arbitration, in pre-war gold francs instead of in paper francs as claimed by Brazil

BANKING AND CREDIT

According to the President's message to Congress of May 3, 1930, consolidated balances of banks operating in Brazil showed that bills discounted decreased from 3,008,000 contos at the end of 1928 to 2,488,000 contos at the end of 1929. During the same period loans in current account increased from 3,001,000 contos to 3,588,000 contos, sight deposits decreased from 4,105,000 contos to 3,918,000 contos, time deposits increased from 1,733,000 contos to 2,007,000 contos, and cash increased from 1,045,000 contos to 1,269,000 contos.

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[4] All figures in contos in this publication relate to paper contos At the stabilization rate, 1 paper conto=$119 63

The number of bankruptcies petitioned and decreed increased in both Rio de Janeiro and Sao Paulo during 1929. Particularly in the early months of the year and again after the break in coffee prices, credit was restricted, commercial collections were difficult, and money rates were high. In the closing months of the year the discount rate in Rio de Janeiro for prime 90-day paper ranged around 12 per cent. In December, 1929, a new bankruptcy law was promulgated to improve the position of creditors in bankruptcy cases.

CURRENCY AND EXCHANGE

The total note circulation (exclusive of Caixa de Conversao notes totaling 3,057 contos at the end of 1929) increased from 3,379,026 contos at the end of 1928 to 3,391,923 contos at the end of 1929. This small increase consisted entirely of a gain in the notes of the Caixa de Estabilizacao.[5] The total gold reserves against note circulation increased from £30,533,389 on December 31, 1928, to £30,851,310 a year later. The ratio of gold reserves to note circulation at the end of 1929 was 37 per cent.

Exchange fluctuations in the first 10 months of the year were relatively slight. Even in November, despite the break in coffee prices of the previous month, exchange rates held up rather well. A limitation which the Bank of Brazil placed in December on its sales of exchange, was followed by a decline in the exchange value of the milreis to a monthly average of $0.1129[2] in December and $0.1109[6] in January, 1930, after which an improvement set in, exchange firming up to an average rate of $0.1183[2] in May, 1930, as compared to the stabilization rate of $0.1196. During June, 1930, however, the exchange value of the milreis again weakened somewhat.

CHILE

Chilean economic and financial conditions during 1929, were satisfactory. Despite a slowing down in some lines near the end of the year, mining, industrial, agricultural, and commercial activities continued at high levels which reflected in expanding Government revenues and exchange stability.

GOVERNMENT FINANCES

According to preliminary figures, ordinary revenues and expenditures during 1929 were in excess of budget estimates and totaled 1,267,556,419 pesos (1 peso equals $0.1217 at par) and 1,189,934,016 pesos, respectively, a surplus of 77,622,403 pesos thus resulting. It should be noted, however, that the figure for revenues includes a surplus of 34,006,015 pesos carried over from the previous year. On the other hand, expenditures included an item of 15,406,000 pesos covering the purchase of bonds of the State for the creation of an emergency fund. Expenditures on account of the extraordinary budget totaled 406,161,655 pesos against net revenues from loans and bankers' advances of 343,182,897 pesos and funds carried over from 1928 of 37,949,451 pesos. The difference of 25,029,307 pesos was met by ordinary revenues, as not all the loans authorized by laws 4303 and 4495 were placed

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[2] See footnote 2, p. 3.

[5] As a result of heavy withdrawals of gold for export, note circulation of the Caixa de Estabilizacao declined from 848,234 contos at the end of 1929 to 345,295 contos by May 2, 1930. The decline in the gold holdings of the Caixa de Estabilizacao during this period was identical with the decline in note circulation.

[6] Noon buying rates for cable transfers in New York as reported by the Federal Reserve Bulletin.

In the latter part of the year Congress passed the ordinary budget for 1930, calculating revenues and expenditures at 1,214,650,000 pesos and 1 159,323,798 pesos, respectively, thus anticipating a surplus of 55,326,202 pesos. Included in the revenue figure is an estimated surplus for 1929, of 45,000,000 pesos.

The extraordinary budget for 1930 authorizes total expenditures of 390,797,575 pesos

Despite the high-money rates prevailing in world financial centers, comparatively numerous Chilean external loans were floated in 1929. Although the public offering of Chilean Government issues (national, municipal, and corporate guaranteed) in the United States declined from $79,912,000 in 1928 to $42,400,000 in 1929, they comprised nearly two-thirds of the total Latin-American government issues publicly offered in the United States during the latter year In addition to loans floated in the United States, loans of £2,000,000 and 25,000,000 Swiss francs were floated in Europe The development of the market for internal loans, which engaged the attention of the Government in 1928, continued in the past year, the outstanding feature in this respect being the successful flotation of one loan of 50,000,000 pesos

All categories of the public debt increased during 1929, as shown in the following table

INCREASE OF CHILEAN PUBLIC DEBT

[In pesos]

Item	Dec 31, 1928	Dec 31, 1929	Increase
External direct debt	2, 138, 514, 071	2, 289, 340, 237	150, 826, 166
Internal direct debt	256, 879, 371	322, 893, 333	66, 013, 962
Bank advances in anticipation of issuance of bonds		75, 900, 000	75, 900, 000
Total direct debt	2, 395, 393, 442	2, 688, 133, 570	292, 740, 128
External indirect debt	962, 2[illegible]9, 238	1, 068 495, 318	106, 226, 080
Internal indirect debt	61, 942, 000	64, 347, 500	2, 405, 500
Total indirect debt	1, 024, 211, 238	1, 132, 842, 818	108, 631, 580

BANKING

A notable feature of the year was the fact that the discount rates of the Banco Central de Chile of 6 and 7 per cent for transactions with the banks and the public, respectively, remained unchanged during the world-wide rise in money rates Toward the close of the year, however, discount rates of the commercial banks were raised somewhat

Peso deposits in the commercial banks and the National Savings Bank increased from 1,467,300,000 pesos at the end of 1928 to 1,506,100,000 pesos at the end of 1929, while deposits in foreign money declined from 187,200,000 pesos to 165,000,000 pesos During the same period peso loans of these banks increased from 1,478,600,000 pesos to 1,619,800,000 pesos, and loans in foreign money increased from 176,300,000 pesos to 214,400,000 pesos, while cash and deposits in the Banco Central increased from 181,000,000 pesos to 191 500,000 pesos According to the Bulletin of the Banco Central, at the end of December, 1928, the commercial banks had net balances in their favor in foreign banks of more than 50,000,000 pesos, while at the end of 1929 this had changed to a net balance in favor of their foreign correspondents of 27,000,000 pesos—demonstrating the demand for short-term funds which existed in Chile during the year

According to preliminary figures, outstanding bonds of the mortgage banks increased from 989 600,000 pesos at the end of 1928 to 1,050,400,000 pesos at the end of 1929 Loans and discounts of the Caja de Credito Agrario (Agricultural Credit Bank) increased from 68 600,000 pesos at the end of 1928 to 123,100,000 pesos at the end of 1929

According to a compilation of the Banco Central, the general index of quotations of shares traded on the Santiago Stock Exchange showed a monthly average of 104 83 for 1929 as compared with 95 01 for 1928, however, as a result of declines that occurred in the last quarter of the year, the monthly average of the general index for December was only 88 23 The monthly average quotations of stocks of industrial companies, banks, insurance companies, and mining and coal companies were above those for 1928, while nitrate and cattle-raising companies showed declines The monthly average index for nitrate shares in December, 1929, was only 64 11, as compared with 81 61 for the whole year and 95 37 for 1928 The 1929 monthly average index of quotations of mortgage bonds traded on thet Santiago and Valparaiso exchanges declined from 108 in 1928 to 105 in 1929, while Government bonds declined from 103 1 in 1928 to 102 1 in 1929

CURRENCY AND EXCHANGE

The note circulation of the Banco Central at the end of 1929 amounted to 351,620,000 pesos, as compared with 351,711,000 pesos at the end of the previous year The figure for the end of 1929 does not include a relatively small amount of old Government note issues, responsibility for which had been assumed by the Government during the year The legal gold reserve of the Banco Central increased from 57 44 per cent at the end of 1928 to 58 62 per cent at the end of 1929 Including time deposits abroad however, the reserve declined from 109 09 per cent to 93 67 per cent Exchange was very steady during the year, although the average rate was slightly below that of 1928

COLOMBIA

Largely as a result of a falling off in foreign loans, followed in the latter part of the year by the decline in coffee prices a sharp reversal in financial trends of the previous few years occurred in Colombia during 1929, and at the end of the year the financial position of the National Government and many of the Departments and cities was difficult In reflection of the economic depression, bank clearings declined, drafts protested rose, credit was restricted, and general financial conditions were unfavorable

GOVERNMENT FINANCES

The budget of the National Government for 1929 authorized expenditures totaling 106,120,106 pesos (1 peso equals $0 9733 at par), of which 64,406,242 pesos were ordinary expenditures and the balance extraordinary Of the latter, 36,153,000 pesos were to be met from proceeds of loans According to the monthly statements of the comptroller, as published in the Revista del Banco de la Republica, ordinary revenue collections in 1929 were only about 1 per cent below those for 1928[7] Extraordinary revenues, however, in no way conformed to expectations, owing to the failure to float the foreign loans contemplated Consequently, some public-works projects had to be abandoned and others financed from ordinary revenues It is understood that a substantial deficit was incurred in financial operations of the National Government during the year

As the Colombian Congress adjourned in November, 1929, without taking action on the budget for 1930, the President promulgated the budget for 1930 by a decree of December 27 Revenues were estimated at 62,060,880 pesos, and expenditures, including extraordinary items of 5 256,561 pesos, at 53,983,655 pesos, the balance of 8,077,225 pesos to be applied to the deficit of 1929

As previously indicated, one of the outstanding developments of 1929 was the almost complete cessation of long-term foreign loans An appreciation of the extent of the decline may be gathered from the fact that Colombian Government issues (including national, departmental municipal, and corporate-guaranteed issues) publicly offered in the United States during 1929 were confined to one departmental loan of $1,750 000, as compared to loans totaling $70,318 000 in 1928, most of which, however, were floated in the first half of that year According to a compilation published in the Revista del Banco de la Republica, outstanding long-term foreign loans of the National Government, the Departments, municipalities, and the Agricultural Mortgage Bank totaled 181,701,738 pesos at the end of 1929 as compared to 178 373,000 pesos at the end of 1928 The increase was largely due to the offering during the year of a £1,200,000 loan of the Agricultural Mortgage Bank in England No long-term foreign loans were floated by the National Government during the year, although some short-term funds were obtained from British and American bankers

BANKING, CURRENCY, AND EXCHANGE

Banking statistics reflect the trends of economic and financial activity in Colombia during 1929 For example, bank clearings in December, 1929, totaled only 29,782,000 pesos as compared to 49,225,000 pesos in December, 1928 Bogota bank clearings for December 1929, were only 12 606,000 pesos as compared to 24,211,000 pesos in December, 1928 Consolidated bank balances (excluding the Banco de la Republica) showed that cash and deposits in the Banco de la Republica declined from 15,671,333 pesos at the end of January, 1929, to 11,507,067 at the end of December. Deposits at sight and for less than 30 days dropped from 62,716,580 pesos at the end of January to 45,438,267 pesos at the end of December. During the same period, time deposits declined from 23,183,580 pesos to 16,646,945 pesos. Savings deposits, however, increased from 8,087,946 pesos to 9,481,192 pesos. Obligations discountable at the Banco de la Republica declined from 52,499,044 pesos at the end of January to 37,461,258 pesos at the end of December. Mortgage loans, however, increased from 75,711,684 pesos to 84,550,291 pesos during the same period.

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[7] According to provisional figures from the same source, ordinary revenues in the first quarter of 1930 declined more than 35 per cent as compared with the corresponding period of 1929

The note circulation of the Banco de la Republica declined from 56,183,000 pesos at the end of 1928 to 39,074,000 pesos at the end of 1929. During the same time gold reserves of the Banco de la Republica fell from 64,658,000 to 37,748,000 pesos. The legal gold reserve of the Banco de la Republica increased from 61.1 per cent at the end of 1928 to 67.3 per cent at the end of 1929. During the same time, however, the total gold reserve declined from 96.99 per cent to 83.89 per cent.

The rediscount rate of the Banco de la Republica at the beginning of the year was 7 per cent. In March the rate was raised to 8 per cent. This rate was lowered to 7 per cent on August 1 but it was again raised to 8 per cent in October and to 9 per cent in November, the latter rate being in effect at the close of the year. Despite the increases in the rediscount rate, the bank's loans and discounts for shareholding banks increased from 11,250,765 pesos at the end of 1928 to 18,134,543 pesos at the end of 1929.

In the face of a heavy demand for foreign exchange, the Banco de la Republica maintained its selling rate for sight drafts on New York at 103.50 from March 18 to the end of the year, almost without change. Prior to March 18 the rate had been the par rate of 102.75. As a result of the proportionately heavy demand for foreign exchange, the gold deposits of the Banco de la Republica held abroad declined from 39,721,000 pesos at the end of 1928 to 15,377,000 pesos at the end of 1929.[8]

Checks, notes, and bills protested in Bogota increased from 1,117 amounting to 721,801 pesos in 1928 to 2,211 valued at 1,550,680 pesos in 1929. As might be expected in view of the adverse economic and financial developments, security prices declined, particularly in the latter part of the year. According to a compilation published in the Revista del Banco de la Republica, index figures for 8 per cent bonds and cedulas traded on the Bogota exchange declined from an average of 100.68 for 1928 to 62.78 for December, 1929. The corresponding index figures for stocks of banks and industrial companies declined from 97.75 to 70.15. The December index figures were the lowest monthly figures of the year.

COSTA RICA

Although economic conditions were satisfactory in the early part of the year, subsequent events, such as the drop in coffee prices, the passage of a law increasing the export tax on bananas, and the inability of the Government to float a loan for road construction as planned, all contributed to the unfavorable situation in the closing months of the year At the end of 1929 it was reported that the customhouses were congested with uncleared merchandise, that a large amount of overdue collections remained unpaid, and that the sale of foreign exchange was somewhat restricted, although rates were maintained at 4 colones to the dollar At the same time a scarcity of money was reflected in a rise in rates from around 8 per cent to 10 and 12 per cent The monetary circulation totaled 20,469,307 colones (the colon is stablized at $0 25) at the end of 1929 as compared to 24,138,395 colones at the end of 1928

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[8] Gold deposits held abroad had declined to 9,872,000 pesos at the end of March, 1930.

Near the close of 1928 Congress adopted a resolution providing that the Government should operate under the provisions of the 1928 budget until May, 1929 Subsequently this provision was extended to cover the remaining months of the year According to preliminary figures, ordinary revenues during 1929 totaled 35,395,988 colones Ordinary expenditures and those for public works authorized by law amounted to 36,220,066 colones This figure includes public works expenditures "of an extraordinary character," amounting to 7,490,897 colones As previously indicated, adverse conditions in the bond market in the United States prevented the floating of a loan of $2,750,000 as planned It is reported, however, that the Government obtained a short-term loan of $1,000,000 from American bankers in the latter part of the year

CUBA

In reflection of the adverse economic conditions resulting from the low price of sugar, regular budgetary revenues during the fiscal year ending June, 1929, fell below those of the previous fiscal year and were less than regular budgetary expenditures In anticipation of the possibility of such a result, it will be remembered that the budget law of 1928–29 authorized the President to take amounts up to a total of $7,000 000 during the fiscal year from the special public-works fund or unpledged Treasury funds whenever a decline in budgeted revenues made such withdrawals necessary to meet current monthly budgetary requirements

In the first half of the fiscal year ending June, 1930 (July to December, 1929, inclusive), however, regular budgetary revenues were greater than in the corresponding period of the previous year, although less than regular budgeted expenditures Collections on account of the public-works fund totaled $18,501,821 in the fiscal year ending June 30, 1929, as compared with $17,147,925 in the previous fiscal year

Exclusive of the public-works serial certificates and floating debt, the public debt of Cuba at the end of December, 1929, totaled $83,061,400, of which $74,097,200 was external and the balance internal debt In addition, it is understood that from 1927 to the end of 1929 American bankers made advances against public-works certificates of a little less than $60,000,000, all of which were outstanding at the end of the year This very substantial financial assistance for the public-works program helped to relieve the depression resulting from the adverse conditions prevailing in the sugar industry To the end of 1929, however, public offering of public-works serial certificates in the United States amounted to only $20,000,000, of which $10,000,000 was offered in 1928 and $10 000,000 in 1929 This latter issue was the only Cuban Government issue publicly offered in the United States during the year

BANKING AND CURRENCY

At the end of June, 1929, bank loans totaled $166,654,039 as compared to $519,894,777 a year earlier Habana bank clearings increased from $902,952,061 in 1928 to $953,573,900 in 1929 Owing to heavy Government transfers and other influences, however, Habana bank clearings are a somewhat doubtful gauge of business activity

Savings deposits in banks declined from $45,325,000 at the end of 1928 to $43,717,000 at the end of 1929 Deposits in current accounts totaled $119,800,000 at the end of 1928 and $119,900,000 at the end of 1929 The figures for the end of 1928, however, exclude the accounts of one bank not reporting Credit conditions were difficult throughout 1929, and collections were slow, particularly in the latter part of the year

DOMINICAN REPUBLIC

Principally because of the low price of sugar and cacao, economic and financial conditions in the Dominican Republic during 1929 were generally unsatisfactory and were reflected in a restriction of credit, in collection difficulties, and in a decline in customs revenues

The outstanding financial developments of the year were those connected with the visit of a commission of American financial experts in April, which had been invited by the President of the Dominican Republic "to recommend methods of improvement in the system of economic and financial administrative organization, both national and municipal, for the installation of a scientific budget system, and for an efficient method whereby the Government may control all of its expenditures" The commission presented its report to the President on April 23, and subsequently the Dominican Congress enacted, as recommended, (1) a budget law, (2) an accounting law, (3) a law of finances, (4) a law of projected public improvements, and (5) a law reorganizing the Government departments

In addition, the President appointed a director of the budget, a comptroller and auditor general, and a chief coordinator The commission, after a study of the Government's budgetary position, found that substantial economies would be necessary if a deficit in 1929 were to be avoided, and accordingly recommended various steps designed to balance the budget

According to preliminary figures, gross customs revenues during 1929 totaled approximately $4,990,000, a decline of about $300,000 or a little less than 6 per cent as compared with the previous year Unredeemed bonds of the National Government outstanding at the end of 1929 totaled $19,684,000 as compared with $19 820 000 at the end of the previous year Actual financial results for 1929 are not yet available

ECUADOR

The unfavorable economic and financial conditions which prevailed in Ecuador during 1928 continued in 1929 in even more accentuated form The January, 1930, Bulletin of the Banco Central stated that "without having available at the time of writing exact statistics which might permit us to make absolutely sure statements, we can state, on the basis of partial and private data which we have gathered, that the agricultural year has been, in general, bad and perhaps the most unfavorable in the last decade" A subsequent issue of the same publication showed that in 1929 production of cacao, the principal crop of the country, was the smallest in volume since 1891 This situation was reflected in business depression, money stringency, and difficulties in making commercial collections

GOVERNMENT FINANCES

The ordinary budget for 1929, as originally enacted, calculated revenues and expenditures at 59,900,000 sucres (1 sucre equals $0 20 at par) Revisions, however, subsequently raised this figure to 64,694,828 sucres

On the basis of preliminary figures, customs revenues, the principal source of governmental income, declined from 26,727,701 sucres in 1928 to 26 249 203 sucres in 1929

The budget for 1930, calculating revenues and expenditures at 64,037,200 sucres, was approved near the end of the year According to data accompanying the budget project for 1930, it was calculated that the public debt on January 2, 1930, would total 122,772,469 sucres, of which the external debt accounted for 110 822,840 sucres and the internal debt 11,949,629 sucres While it is understood that the payments due on the Swedish match loan were made during the year, the National Assembly decreed that the amounts due for the service of the coupon of July 2, 1929, and January 2, 1930, of the balance of the external debt should be deposited in the Central Bank rather than remitted to the bondholders and that meanwhile the Executive should enter into negotiations for a settlement of that portion of the external debt upon which remittances were thus suspended Perhaps the outstanding development of the year with respect to the internal debt was the enactment by the National Assembly on July 30 of the "Law of the Consolidation of the Internal Public Debt." This law recognized as obligations of the State all claims examined and approved by the Internal Debt Commission, which had been constituted by decree of December 31, 1927, it also established the bases for their payment.

During the year the Americans who had been serving as Comptroller General and Superintendent of Banks were supplanted in these capacities by Ecuadorian citizens

BANKING, CURRENCY, AND EXCHANGE

As previously indicated, money was very tight and collections difficult during the year. On May 15, the Banco Central raised its discount rates to 10 per cent for associated banks and to 11 per cent for the public These rates compared with those of 8 per cent for banks and 9 per cent for the public, which had been in effect since June 20, 1928 On January 10, 1930, the Banco Central's discount rates were lowered to 9 per cent for associated banks and 10 per cent for the public

In the early part of 1929, the Mortgage Bank of Ecuador sold its first issue of mortgage cedulas abroad. The issue, amounting to

$1,000,000, guaranteed by the Government, was sold to Krueger & Toll, a Swedish company

The Banco Comercial y Agricola during the year continued in the hands of a liquidator appointed by the Superintendent of Banks

Discounts of the Banco Central for associated banks and the public at the end of 1929 were 4,054,391 sucres and 761,405 sucres, respectively, as compared to 3,484,209 sucres and 1,066,068 sucres at the end of 1928 The note circulation of the Banco Central (the sole bank of issue) declined from 36,562,788 sucres at the end of 1928 to 29,977,080 sucres on December 31, 1929 During the same period the legal reserve of the Banco Central increased from 58 35 per cent to 73 87 per cent, although the total reserve declined slightly from 81 81 per cent to 81 63 per cent

Exchange was steady during 1929, although sales of exchange by the Banco Central exceeded purchases by 3,789,385 sucres

GUATEMALA

Although economic and financial conditions in the early months of 1929 were satisfactory, a downward trend set in around the middle of the year, which was greatly accentuated in the last quarter by the drop in the price of coffee

GOVERNMENT FINANCES

According to preliminary figures, budgetary revenues and expenditures during the fiscal year 1928–29 totaled 15,398,824 quetzales (1 quetzal equals $1 at par) and 16,370,747 quetzales, respectively, a deficit of 971,923 quetzales resulting in spite of an increase in revenues over 1927–28 of 1,133,073 quetzales Import duties, the principal source of governmental income, increased 10 per cent during the fiscal year Export duties, however, declined 5 5 per cent. The budget for 1929–30 as originally enacted provided for expenditures of 15,554,614 quetzales In a report of March 1, 1930, the Minister of Finance stated that financial operations for the year 1929–30 would undoubtedly result in a deficit In his message to Congress of March 1, 1930, the President stated that the public debt had been reduced during the year so that the total outstanding at the end of 1929 was 15,556,018 quetzales.

BANKING AND CURRENCY

Banking and credit conditions, particularly during the latter part of the year, were unsatisfactory Money was tight and collections difficult Drafts held by banks for collection at the end of 1929 were considerably larger than at the end of the previous year, despite the fact that imports during the closing months of 1929 were less than in the corresponding period of 1928 Sight deposits of the eight leading banks declined 20 8 per cent between the end of June and the end of December During the same period, time deposits decreased 57 7 per cent

One of the outstanding banking developments of the year was the enactment of a law (No 1616 of May 30) authorizing the President to organize an institution of agricultural credit Under the authority conferred by this law the President signed a decree on December 4, 1929, creating the Credito Hipotecario Nacional de Guatemala (National Mortgage Bank of Guatemala) The year closed, however, without the bank being put into operation

The total note circulation declined from 9,935,481 quetzales on December 31, 1928, to 9,665,481 quetzales on December 31, 1929 Of this latter amount, 6,700,000 quetzales comprised notes of the Banco Central, the balance was made up of the old paper money During 1929 the Government paid the Banco Central 945,591 quetzales on account of the old note issues

Deposits of the Banco Central with banks abroad declined from 3,017,814 quetzales at the end of 1928 to 1,236,305 quetzales at the end of 1929 From November 22 on, the metallic reserves of the Banco Central went somewhat below the level required by the law and the statutes of the bank At the end of December these reserves were 1 56 per cent below the required amount They had been restored to the required level on January 15, 1930

HAITI

General economic and financial conditions in 1929 were less favorable than in the previous year, largely because of the smaller 1928–29 coffee crop and to the break in coffee prices in October Nevertheless, Government obligations were promptly met, the public debt was reduced, and the unobligated cash balance at the end of the fiscal year (September 30, 1929) was the highest on record

Revenues and expenditures from revenues during the fiscal year 1928–29 totaled 42,521,528 gourdes (1 gourde equals $0 20 at par) and 44,119,504 gourdes, respectively, a deficit of 1,597,976 gourdes thus resulting Revenues declined 15 66 per cent as compared with the previous fiscal year while expenditures increased 7 66 per cent. The decline in revenues resulted from a 21.81 per cent decline in customs receipts, the most important source of governmental income Owing to greater receipts from excise taxes, internal revenues constituted 14 19 per cent of total fiscal receipts, as compared with only 8 41 per cent in 1927–28 The ordinary budget for 1929–30, passed in July, calculates revenues and expenditures at 40,100,000 gourdes and 40,090,990 gourdes, respectively

As the revenue estimates for 1929–30 were made before the drop in coffee prices, it is probable that actual collections will be below the budget estimates It is reported, however, that at the end of 1929 steps were being taken to reduce expenditures below the budget figure

The gross public debt was reduced from 94,438,115 gourdes at the end of September, 1928, to 88,677,396 gourdes at the end of September, 1929.

In reflection of lower business activity, estimated currency in circulation declined from 21,238,675 gourdes at the end of September, 1928, to 18,006,635 gourdes at the end of September, 1929 Monthly average note circulation of the Banque Nationale de la Republique d'Haiti (the sole bank of issue) declined from 15,159,248 gourdes in the fiscal year 1927–28 to 12,372,489 gourdes in 1928–29

Average loans and discounts in Haiti declined from 35,143,507 gourdes in the fiscal year 1927–28 to 21,866,719 gourdes in 1928–29. Average individual deposits increased from 15,028,892 gourdes in 1927–28 to 16,499,256 gourdes in 1928–29, and average Government deposits increased from 22,829,676 gourdes to 25,174,594 gourdes. In the closing months of the fiscal year credit was restricted; this was greatly accentuated for a time after the drop in coffee prices, following which some improvement occurred

HONDURAS

General economic conditions in Honduras during 1929 were fairly satisfactory, the country's relative lack of dependence on coffee enabling it to escape the ill effects of the drop in coffee prices experienced in most of the other Central American countries in the latter part of the year

In a report covering the fiscal year 1928–29, the Minister of Finance stated that revenue collections during the year of 13,728,388 pesos (1 peso is officially recognized as the equivalent of $0 50) were the largest in the history of Honduras He further stated that payments on Government salaries and departmental expenses had been punctually made, that internal debts which had to be amortized in accordance with the budget had been canceled, and that payments on the external debt had been regularly made

According to the Minister of Finance, revenues and expenditures during 1928–29 totaled 13,728,388 pesos and 12,863,625 pesos, respectively, a surplus of 864,763 pesos thus resulting Adding the surplus carried over from 1927–28, the Treasury balance at the end of the fiscal year 1928–29 amounted to 1,691,059 pesos The budget for the fiscal year 1929–30, as originally enacted, calculated revenues and expenditures at 13,101,923 pesos

In January, 1929, Congress extended the time for converting first-class claims into customs bills (under the general funding operations of the internal debt of Honduras) from December 31, 1928, to December 31, 1929 The external sterling debt (the English debt) at the end of July, 1929, was equivalent to 10,800,000 pesos The consular revenues, which are pledged to the service of the sterling debt, increased from 983,760 pesos in 1927–28 to 1.154,455 pesos in 1928–29

During 1929 there was much discussion of the possibility of founding a national bank, but the year closed without the bank having been established

Exchange was steady in 1929, but in the early part of 1930 exchange difficulties occurred, and it was reported that for a time dollar drafts could not be purchased with pesos

MEXICO

GOVERNMENT FINANCES

In view of the adverse economic conditions prevailing and the ill effects of the revolutionary movement of March and April, preliminary reports indicate that the budgetary position of the Government at the end of 1929 was better than might have been expected. The budget for 1929 calculated revenues and expenditures at approximately 288,000,000 pesos (1 peso equals $0 4985 at par) According to a statement of the Minister of Finance to the press, revenues during the first semester of the year were more than 7,600,000 pesos below budget estimates, largely owing to the revolutionary movement which broke out in March, 1929 On the basis of definitive figures for July–November, inclusive, it was estimated, however, that this decline below budget estimates in the first half of the year was offset by increases in the second semester.

Furthermore, at the end of 1929 cash funds of the Federal Government were reported to total nearly 18,000 000 pesos as compared to a little over 4 000,000 pesos at the end of 1928 An accurate appraisal of financial results for the year, however, will not be possible until complete figures for revenues and expenditures come to hand Near the end of the year Congress passed the budget for 1930, calculating revenues and expenditures at about 294,000,000 pesos

No payments on the debt covered by the agreements with the International Committee of Bankers on Mexico were made during the year The President, in his message to Congress of September 1, 1929, stated that negotiations with that committee had been interrupted by the unforeseen circumstances that developed in the early months of 1929, but that conversations would soon be renewed as a result of an invitaiton from the president of the committee The year closed, however, without any new debt agreement having been concluded

Important developments relative to the internal debt were the appointment of a commission at the beginning of the year to adjust the internal debt and the inauguration of payments in February on commercial obligations and personal services unpaid in previous years These payments had to be suspended in March, owing to the revolutionary movement, but were resumed in August Bonds of the public agrarian debt issued up to August 15, 1929, totaled 14,243,700 pesos, of which 13,750,500 pesos were outstanding at that time.

BANKING, CURRENCY, AND EXCHANGE

The first half of the year was characterized by some uncertainty and tension in banking circles, due to the disturbed conditions arising out of the revolutionary movement which began in March While consolidated bank statements showed that cash and deposits declined rather noticeably in that month, the quelling of the revolt was followed by a return to normal banking conditions Although a few small banking houses were forced to suspend payments, no serious banking difficulties occurred

According to preliminary figures, consolidated bank balances at the end of 1929 showed a gain in cash and an increase in sight and time deposits, but deposits in foreign money declined No marked change occurred in the level of interest rates in 1929 Silver bank clearings of the Mexico City clearing house increased from 395,572,921 pesos in 1928 to 513,151,062 pesos in 1929 During the same period gold clearings declined from 293,231,234 pesos to 283,294,865 pesos. The average exchange value of the gold peso was below par, although somewhat higher than in 1928 The discount on silver ranged between 3.5 per cent and 4 per cent during most of the year, although the rate of discount was higher for a time during the revolutionary disturbances of the early part of the year

NICARAGUA

Largely as a result of lower returns from coffee, economic conditions in Nicaragua during 1929 were less favorable than in the previous year At the close of the year money was tight and collections slow In reflection of diminished commercial activity, the circulation of the cordoba (1 cordoba equals $1 at par) fell from 4,002,000 cordobas at the end of December, 1928, to 3,593,000 a year later Exchange rates were steady

However, according to the President's message to Congress of December 15, 1929, the Government's financial position was very satisfactory. At that time the President stated that "in the early part of next January (1930) * * * it will be known that the surplus of this first year of government, after an unfortunate war, amounts to more than $2,400,000 without taking into account the profits of the railroad and the Banco Nacional" It was further stated that part of this surplus had been applied to the purchase of the Corinto wharf and that other allotments of $25,000 were being used for road construction

According to preliminary reports, total government receipts during 1929 amounted to about 6,000,000 cordobas The bonded indebtedness was reduced during the year, so that the total at the end of 1929 was reported to amount to about 4,500,000 cordobas

Another noteworthy development of the year was the creation by a presidential decree of July 30, 1929, of a provisional commission to pass upon claims for damages growing out of the revolution of 1926 and 1927 The commission subsequently began examining claims to determine the total, and special funds set aside for meeting the claims, were reported to be in excess of $500,000 in January, 1930

PANAMA

One of the outstanding financial developments in Panama during 1929 was the visit of a commission of American financial experts in the early part of the year, which made recommendations relative to the Government's financial administration after studying local conditions A decree was subsequently issued establishing a central office of accounting and fiscalization of the National Government, and an economy program was initiated

While actual figures of revenues and expenditures are not available, it is understood that Government financial operations in the biennial period ending June 30, 1929, resulted in a deficit The budget for 1929–1931, as enacted in June, calculates revenues and expenditures at $17,031,907

During the early part of the year the Banco Nacional de Panama obtained a 20-year $1,000,000 loan from Canadian bankers, the proceeds of which were to be invested in real-estate mortgages.

PARAGUAY

General economic and financial conditions in Paraguay during 1929 were adversely affected by the boundary dispute with Bolivia, particularly in the early part of the year Lower prices for a number of principal export products and the decline in Argentine exchange were other unfavorable factors

The ordinary budget for the fiscal year 1928–29 calculated ordinary revenues and expenditures at 253,478,000 paper pesos In addition, an extraordinary budget for public works authorized expenditures of 24,765,000 paper pesos to be met by a credit of 25 000,000 paper pesos. According to the President's message to Congress of April, 1930, actual ordinary revenues in 1928–29 amounted to 256,186,791 paper pesos Customs revenues, the most important source of governmental income, declined 9 47 per cent, as compared with the previous year On the other hand, internal taxes increased 9 35 per cent Ordinary expenditures amounted to 216,698,836 paper pesos, extraordinary budgetary expenditures totaled 5,356,270 paper pesos, and extra budgetary expenditures totaled 64,531,925 paper pesos Of the last-named amount the President stated that items totaling 40,490,094 paper pesos were "nearly totally paid from extraordinary special revenues" It is understood that the budget for 1929–30 presented to Congress was not acted upon by that body, so that the budget for 1928–29 was extended into the succeeding year

The external debt decreased from 4,535,812 gold pesos at the end of November, 1928, to 4,219,388 gold pesos at the end of November, 1929 On the latter date the internal debt, as reported in the President's message of April, 1930, totaled 2,738,942 gold pesos and 43,586 435 paper pesos

While events which occurred in connection with the difficulties with Bolivia subjected the monetary system to some strain, the Oficina de Cambios effectively met the situation, and at the end of 1929 the Oficina de Cambois held a reserve against note circulation of 54,875 per cent as compared to a reserve of 51 27 per cent at the end of 1928 The exchange value of the Paraguayan peso fluctuates automatically with the Argentine peso (due to the fact that the conversion rate of the Paraguayan paper peso is fixed at 42 61 Paraguayan paper peso to 1 Argentine gold peso; so the decline in Argentine exchange during 1929 caused a decline in the exchange value of the Paraguayan paper peso

PERU

The year 1929 and the early months of 1930 were characterized by especially noteworthy financial developments in Peru Perhaps the most important of these grew out of the inability to float the remaining portion of the Peruvian national loan, amounting to $15,000,000, and the currency and exchange developments, culminating in a law promulgated in February, 1930, which provided for the stabilization and revaluation of the currency

GOVERNMENT FINANCES

The budget for 1929 calculated revenues and expenditures at Lp.12,583,636, the largest budget in the history of Peru Actual financial results for the year, however, are not yet available In view of the expenditures required for public works, the unfavorable status of the bond market in New York and other world financial centers and the consequent inability to float the unissued portion of the second series of the Peruvian national loan, was reflected in the status of Government finances, particularly in the latter part of the year, and brought about some curtailment of contemplated public-works construction

The President, in his message to Congress of October 12, 1929, reported that, while awaiting a favorable opportunity to float this loan, the bankers had extended three short-term loans to the Government at 6 per cent interest, one on June 5, 1929, for $500,000, payable in six months, another on July 5, 1929, for $785,000, due on December 31, 1929, and a third on July 15 amounting to $3,790,000 and also due on December 31, 1929 The year closed, however, without the unissued portion of the national loan being floated In February, 1929, a law was signed authorizing the issuance of internal bonds up to Lp 1,500,000, the proceeds of which were to be applied chiefly to the payment of the floating debt Up to June 30, 1929, bonds totaling Lp 421,200 had been issued under this authorization During the year a loan of $2,000,000 was obtained from a large copper company operating in Peru for the purpose of acquiring the old Callao port works and terminating the concession of the Societé Générale de Paris In January, 1930, the Executive was authorized to issue and discount special treasury obligations up to $4,000,000 In February, 1930, laws were promulgated authorizing the Executive to contract an internal loan of Lp 960,000, to issue internal bonds to creditors of the State on account of public works up to Lp 1,800,000, and to use funds on deposit in New York to pay off short-term indebtedness to American bankers amounting to approximately $4,570,000 The funds on deposit in New York which were to be used were a $4,000,000 gold exchange fund and the required portion of a fund of $1,600,000 which had been set up to cover the Government's share of the capital of the Central Mortgage Bank of Peru

At the end of June, 1929, the external debt of the National Government totaled $90,820,141 and £4,226 280, as compared with $73,494,041 and £2,845,690 at the end of June, 1928 The internal consolidated and floating debts at the end of June 1929, totaled Lp 4,533,651 and Lp 3,659,175, respectively, as compared with Lp 3,963,846 and Lp 3,663,740 on June 30, 1928 It should be pointed out, however, that the totals of internal indebtedness include some dollar and sterling obligations converted at par of exchange instead of at the rates actually prevailing

A decree issued in September created the office of Contraloria General de la Republica In addition to other functions, it is the duty of this office to see that Government departments do not contract obligations in excess of resources legally available

At the close of the year Congress passed the budget for 1930 calculating receipts and expenditures at Lp 14 098,719, an increase of Lp 1 515,083 over the record-breaking budget for 1929

BANKING, CURRENCY, AND EXCHANGE

Currency and exchange developments of unusual importance occurred in the latter part of 1929 and in the early part of 1930, the most important of which was the enactment of a law in February, 1930, providing for the revaluation and stabilization of the currency It will be remembered that in April, 1928, the Peruvian pound was provisionally stabilized at $4 This rate was maintained throughout 1928, no apparent derangements occurred until the last quarter of 1929, when difficulties were reported in obtaining foreign exchange in Peru at the stabilization rate While the nominal exchange rate at this time was the stabilization rate of $4, exchange was not always actually obtained at this rate, and it is understood that the Peruvian pound went as low as $3 70 in some transactions

In December 1929 and in the early part of 1930, the Government issued a number of decrees intended to prevent a decline in the exchange value of Peruvian currency A decree of December 12 prohibited banks from investing in foreign securities on their own account, and this was followed by another decree prohibiting the making of contracts within the country in foreign money While some uncertainty arose as to the interpretation of the latter decree, it was not intended to apply to import or export dealings, but only to strictly internal transactions A decree issued in the early part of January required that payment of interest and amortization of mortgage bonds issued in foreign currency within the Republic be effected in Peruvian currency at a rate of £P1 for each $4 or the equivalent in English money

These measures were followed by a law enacted in February designed to stabilize the currency at a rate equivalent to $4 to the Peruvian pound, and establishing a new coin, the gold sol ($0 40 at par) as the new monetary unit. The notes to be issued in the future by the Reserve Bank of Peru are to be representative of gold soles. The necessary reforms were also made in the law creating the Reserve Bank In the first half of 1930, however, the exchange value of Peruvian currency continued to be somewhat below par in actual market transactions

Total note circulation during the year increased from £P6,122,037 at the end of 1928 to £P6,522,824 at the end of 1929 During the same time the gold-reserve ratio declined from 89 06 per cent to 69 22 per cent In March, 1929, the Reserve Bank raised its discount rate from 6 to 7 per cent In the early part of September the rate was lowered to 6 per cent, but it was raised again to 7 per cent at the end of October and to 8 per cent in November Later in November the rate was reduced to 7 per cent, the rate in effect at the close of the year

Important banking developments during the year were the opening of the Central Mortgage Bank of Peru and the establishment by a decree of July 31, 1929, of the Caja Nacional de Ahorros (National Savings Bank) The administration of the National Savings Bank was intrusted to the Reserve Bank of Peru, and the $6,000,000 received from the Republic of Chile under the Tacna-Arica treaty was turned over to the Reserve Bank for the purpose of setting up the National Savings Bank Average monthly bank clearings increased from £P6 362,741 in 1928 to £P6,561,423 in 1929

EL SALVADOR

Although El Salvador's economic and financial conditions in general were satisfactory in the first half of the year, a reversal occurred in the latter half of 1929, particularly after the drop in October of the price of coffee, the country's principal money crop.

According to a report of the Minister of Finance, ordinary revenues and expenditures during 1929 totaled 26,147,160 colones (1 colon equals $0.50 at par) and 27,219,238 colones, respectively. Revenue collections were 600,869 colones greater than the record figures of the previous year. Declines in revenues from import duties and liquor taxes were more than offset by increases in export duties, direct taxes, and other sources of income. Expenditures increased 1,851,984 colones over the previous year, the principal increases occurring in the Departments of War, Marine and Aviation, Public Credit, and Public Instruction. The budget for the fiscal year ending June 30, 1930, as passed in June, calculated revenues and expenditures at 25,490,000 colones and 25,775,398 colones, respectively. According to preliminary figures, the public debt decreased from 45,806,000 colones at the end of 1928 to 43,194,000 colones at the end of 1929.

Following the break in coffee prices in October, credit was restricted and commercial collections slowed up. Owing to the drop in coffee sales, the demand for dollar exchange in December exceeded the supply to such an extent that an appreciable premium on dollars developed. The exchange situation was subsequently alleviated, however, by the joint act of the Government and the banks.

URUGUAY

According to the message to Congress of the National Council of Administration of March 15, 1930, revenues and expenditures of the National Government during the fiscal year 1928–29 totaled 58,576,428 pesos (1 peso equals $1.0342 at par) and 57,565,207 pesos, respectively, a surplus of 1,011,221 pesos thus resulting. During the fiscal year revenues increased 2,050,059 pesos and expenditures about 3,000,000 pesos as compared with 1927–28. A statement prepared by the general accounting office and included in the message above mentioned indicated a probable deficit in budgetary operations for the fiscal year 1929–30 of about 355,000 pesos.

The public debt increased from 213,999,318 pesos on January 1, 1929, to 217,190,339 pesos on December 31, 1929. New issues, all of which were internal, totaled 8,426,648 pesos, and amortizations totaled 5,235,627 pesos.

Consolidated banking figures at the end of 1928 and 1929 compared as follows:

CONSOLIDATED STATISTICS OF URUGUAYAN BANKS

[In pesos]

Item	Dec. 31, 1928	Dec. 31, 1929	Increase
Capital	48,272,974	49,282,375	1,009,401
Cash reserves	80,884,266	86,162,631	5,278,365
Deposits	152,963,161	176,193,816	23,230,685
Loans	203,941,644	219,246,689	15,305,044

A part, although by no means all, of the above increases during the year arose from the inclusion of figures of "cajas populares" from June, 1929. Montevideo bank clearings increased from 780,000,000 pesos in 1928 to 822,000,000 pesos in 1929.

Note circulation declined from 72,484,243 pesos at the end of 1928 to 71,340,222 pesos at the end of 1929. The legal gold reserve of the Banco de la Republica at the end of 1929 amounted to 64.62 per cent.

Outstanding mortgage bonds and cedulas of the Mortgage Bank of Uruguay increased about 8,500,000 pesos during the year. Stock-exchange transactions (mostly Government bonds and mortgage cedulas) increased slightly in 1929, and average quotations were somewhat higher than in the previous year.

The outstanding financial development of the year was probably the weakness in exchange, which became particularly noticeable in April and continued throughout the remainder of 1929 and into 1930, reaching a monthly average of $0.8897[9] in February, 1930, after which some recovery occurred, only to be followed by renewed weakness in June. The yearly average for 1929 was $0.9863[2] as compared to $1.0266[2] in 1928 and a par value of $1.0342.

Among other factors, the decline in exchange was officially attributed in March, 1930, to (*a*) an adverse balance of trade, in which poor prices for wool and heavy importations played a large part; (*b*) the exhaustion of funds from foreign loans held abroad, and (*c*) the decline in the exchange value of the Argentine peso.

VENEZUELA

Developments in Venezuelan public finances during 1929 were favorable. Treasury receipts during the year, including silver and nickel coinage of 10,200,000 bolivares (1 bolivar equals $0.193 at par), totaled 256,440,000 bolivares, an increase of 52,094,000 bolivares over the previous year. Treasury disbursements during 1929 were reported at 209,155,000 bolivares, or 47,285,000 bolivares less than receipts. Funds at the disposal of the National Treasury at the end of 1929 totaled 118,249,000 bolivares as compared to 70,964,000 bolivares at the end of 1928. The budget for the fiscal year 1929–30, as originally enacted, calculated revenues and expenditures at 193,189,750 bolivares and 192,450,000 bolivares, respectively. Included in the authorized expenditures are items of 20,000,000 bolivares and 4,000,000 bolivares for increases in the capital of the Banco Agricola Pecuario and the Banco Obrero, respectively. These banks were established in 1928, the former to make loans to farmers and stock raisers and the latter to make loans to workmen for the acquisition of low-cost dwellings.

The public debt was further reduced during the year, totaling 52,791,000 bolivares at the end of 1929 as compared to 67,565,000 bolivares at the end of the previous year. At the end of 1929 the Government's balance in the Banco de Venezuela, payable at sight, was more than twice the amount of the public debt.[10]

Uncertainty over the course of political developments in the earlier part of the year, and the drop in coffee prices in the latter part, tended to restrict credit and slowed up commercial collections. Exchange rates were steady throughout the year.

See footnote 2, p. 3.

[9] Noon buying rates for cable transfers in New York as reported by the Federal Reserve Bulletin.

[10] In May, 1930, the Venezuelan Congress adopted a recommendation providing for the inclusion in the next budget of a sum sufficient to pay off the entire foreign debt of the Republic.

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U. S. DEPARTMENT OF COMMERCE
R P LAMONT, Secretary

BUREAU OF FOREIGN AND DOMESTIC COMMERCE
WILLIAM L. COOPER, Director

THE CHEMICAL INDUSTRY IN CZECHOSLOVAKIA

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FOREWORD

The Czechoslovak chemical industry is one of the oldest in the world, dating its origin to the sixteenth century, when vitriol and alum were first produced within its boundaries. The industry is, however, still comparatively small, although there has been considerable progress since the country became an independent political entity.

As in major chemical-producing countries, considerable attention has been given during the past two years to the development of a fixed-nitrogen industry. There is a rather large production of alkali and other industrial chemicals and of coal tar, while wood distillation is one of the oldest branches. Production of these lines is sufficient for domestic consumption and allows an export trade of around $16,000,000.

The total foreign chemical trade amounts to nearly $50,000,000. Although the bulk of the trade is with other European countries, Czechoslovakia depends upon the United States for a number of commodities, especially naval stores, phosphate rock, and sulphur. The United States also has been supplying greater amounts each year of such chemical specialties as toilet preparations, pharmaceuticals, and insecticides. Though these lines, owing to disadvantageous price competition, appeals more to high-class trade, their increasing penetration is evidence of profitable business to their American manufacturers.

As in other countries, the industry is more or less centralized. The major unit of producers is known as the Aussiger Verein, which is said to produce over 60 per cent of the country's industrial chemicals. At least eight producer groups participate in purchasing and sales cartels—bones, glue, wood distillates, nitrogen, phosphates, matches, explosives, and wood preserving. For the most part these cartels are along the usual European lines.

This is one of a series of publications on the chemical industries of the major producing countries. This is the first one on Czechoslovakia and was prepared by William T. Daugherty, American Trade Commissioner in Berlin, who made a special trip to Czechoslovakia to make the study. Other bulletins have been issued on the chemical industries and trade of France, Germany, Great Britain, Italy, Poland, and Switzerland. The Chemical Division of the Bureau of Foreign and Domestic Commerce will be glad to answer specific inquiries from American exporters.

WILLIAM L. COOPER, *Director,*
Bureau of Foreign and Domestic Commerce.

AUGUST, 1930

THE CHEMICAL INDUSTRY IN CZECHOSLOVAKIA

By William T Daugherty, American Trade Commissioner

Since October, 1918, when Czechoslovakia became an independent republic, there has been a determined effort to promote an industrial development to make the country as self-contained as possible This development is favored by the rich mineral and other natural resources of the States of Bohemia, Moravia-Silesia, Slovakia, and Carpathian Ruthenia

Bohemia and Moravia-Silesia are particularly favored in possession of high-grade lignite in the former area and coal in both areas, the coal deposits at Moravska-Ostrava, contiguous with Upper Silesian coal, being especially good for coking In addition, the Czechoslovak States have an export capacity in antimony ores, graphite, quicksilver, kaolin, clays, building stones, magnesite, uranium ore, and feldspar, but shortages in iron ores and pyrites, base and precious metals generally, manganese ores, salt, quartz, and glass sand

Bohemia is the richest of the Czechoslovak States, industrially The Czechoslovak chemical industry centers there, particularly in northwest Bohemia, in and around Aussig and near or on the Elbe and Eger Rivers Moravia, with its wealth of coking and coal along with its iron and steel industry, has a considerable chemical development Slovakia has some chemical plants, especially at Bratislava, and is notable in possession of pyrites, although insufficient to supply the entire demand of the local chemical consumers Carpathian Ruthenia, highly wooded, contains the country's well-developed wood-distillation industry and has the major share of its salt (sodium chloride) deposits

With its wealth of minerals and favored by other natural conditions, the Czechoslovak chemical industry can look back to origins in the sixteenth and seventeenth centuries when vitriol and alum were first produced in the country Stimulated by nationalistic pressure since the country became independent, the local chemical industry, if comparatively small, is alert in reception and development of new and modern processes to make it as self-contained as possible

Led in this development by such dominant chemical enterprises as the Aussiger Verein, the Aktienfabrik zur Erzeugung von Chemikalien in Kolin, and the firm of Johann David Starck of Kaspian, progress has been fairly steady since the war, although a reaction in sales set in during 1929 after peak business in 1927 and 1928

Conspicuous in this forward urge is the development of fixed nitrogen, produced by direct ammonia synthesis since early in 1928 by the Czechoslovak Nitrogen Works, of Marienberg, Moravska-Ostrava, and by the synthetic plant at Aussig of the Aussiger Verein, making technical nitrogen salts only Though the Marienberg plant has a present production of only 30 tons of ammonia a day (proposing to make 60 tons soon), part of which is used in making ammonium sulphate, this concern proposes to develop certain nitrate salts, starting with Nitro-Chalk (ammonium nitrate and calcium carbonate), to break the tide of Chile saltpeter imported for fertilization of the local beet, potato, and grain crops, with this plan, the works proposes to raise its stock capital from 40,000,000 to 100,000,000 crowns Nitrogen is fixed also by the Aussiger Verein at its cyanamide plant at Falkenov, producing at the rate of some 30,000 tons a year, the Aussiger Verein also contemplates a lignite-distillation and tar-cracking process to tie up with its cyanamide plant

Along with its fertilizer nitrogen, the Czechoslovak Nitrogen Works is supplying the Czechoslovak Explosives Works (industrial and military explosives monopoly) with ammonia, while the latter, with its associated "Synthesia" plants at Semtin, near Pardubitz, is further developing production of nitric acid and nitrates for technical use

Czechoslovak production of other mineral acids, notably sulphuric, is on the increase, production capacity for the latter having been increased last year Following this increase, capacity of the 10 local superphosphate enterprises has become sufficient to meet home requirements, in spite of the fact that Czechoslovakia still imports some superphosphate by international agreement

Likewise, production of soda ash increased, over 90,000 tons having been produced against a capacity of 100,000 tons in 1929

Without fertilizer potash from domestic sources, the country has, however, a sizeable industry making potassium carbonate from wastes in the sugar and spirits industries Likewise, local producers are producing organic acids, including formic, oxalic, citric, lactic, and salicylic.

Acetic-acid production supplies local needs and has export capacities, as does that of the other products of destructive wood distillation, originating in ancient plants located on the hardwood forest reserves of Carpathian Ruthenia This branch, however, has lost former export markets because of synthetic products produced abroad

Production of coal tar shows a progressive increase, having attained 130,000 metric tons in 1929 This material is cracked by the firm of Julius Ruetgers, of Moravska-Ostrava, connected with the Ruetgers Co , of Berlin, Germany

Another rather unique source of wealth, primarily for the pharmaceutical and colors branch, is the occurrence of pitchblende or uranium ore at Jachymov in northwest Bohemia The ore is partly reduced to radium chloride, the latter being used by at least two pharmaceutic producers to make so-called radioactive therapeutic preparations

Still short of certain essential primary materials for processing to finished chemicals, Czechoslovakia depends on the United States as a source of supply for a number of commodities, including naval stores, phosphate rock, sulphur, crude borax, etc American producers of completely finished chemicals also have made gains in selling certain chemical specialties, such as soaps, toilet and dental creams, perfumeries, insecticides, pharmaceuticals, etc

FOREIGN TRADE IN CHEMICALS

Czechoslovakia's foreign trade in chemicals is becoming of greater importance each year Imports in 1929 of around $31,000,000 for chemicals and allied products were 30 per cent greater than in 1924 Exports are a little more than half as much as imports and are likewise on the upswing

As with other European countries, the bulk of the trade is with neighboring nations Being an inland country, much of the trade is by transshipment, making it difficult to procure accurate statistics by countries of origin or destination

IMPORTS FROM THE UNITED STATES

A definite figure of Czechoslovakia's imports of chemicals and chemical materials from the United States is difficult to establish While figures of direct purchases from the United States are available to 1928, much additional chemical material is reexported from Hamburg or other free ports and given in trade figures as so originating

An estimate of Czechoslovakia's chemical imports from the United States is attempted for 1927, a figure of 4,564 metric tons being entered with a value of 10,835,000 Czech crowns (crown equals about $0 03) This figure, however, excludes such important items as phosphate rock, rosin, pitch, coal-tar dyes, etc , which are substantial items of import from the United States, so that a gage of these imports is made more difficult For instance, Czechoslovakia imported direct from the United States in 1928, 27,643 metric tons of phosphate rock, valued at 10,368,000 crowns, a figure that almost attains the values of the total so-called chemical imports from the United States in 1927

Phosphate rock, however, is the second important chemical import from the United States, the chief item being rosin, of which over 3,000 tons, valued at almost 8,000,000 crowns, was purchased direct from the United States in 1928, in addition to 6,000 tons, valued at almost 16,000,000 crowns, entering through Hamburg It may be assumed that American rosin is reexported from Hamburg, while phosphate rock is not

The attempt has been made, in the following figures, to select 10 items of chemical trade for which 1928 figures are available showing their origin in the United States They are arranged in the order of their respective given values in direct purchase from the United States Against these figures are given tonnages and values listed as originating in Hamburg, figures that, of course, involve reexports As mentioned, corresponding 1929 figures are not available, but a picture of the importance of the United States in Czechoslovakia's chemical trade may be more or less gaged

IMPORTS OF CHEMICALS INTO CZECHOSLOVAKIA

Item	1928						1929, total	
	Total		From United States		From Hamburg		Metric tons	Thousand crowns
	Metric tons	Thousand crowns	Metric tons	Thousand crowns	Metric tons	Thousand crowns		
Phosphate rock	142,665	49,929	27,643	10,368	- - -	--	146,163	50,529
Rosin	12,662	35,827	3,044	7,938	6,022	15,892	14,759	40,649
Crude borax	3,749	8,969	2,010	4,991	1,133	2,750	2,736	4,564
Sulphur	7,720	8,365	2,280	2,307	1,403	1,456	9,309	10,310
Lac varnishes	631	37,911	68	1,793	3	89	815	42,403
Carborundum	617	3,294	271	1,643	17	12	600	3,391
Turpentine and oil	2,074	10,174	232	1,202	571	2,995	2,357	11,581
Miscellaneous coal tar dyes	3,209	161,526	25	467	18	815	3,453	159,162
Carbon black	839	4,160	29	198	45	357	1,144	5,634
Sulphur blacks	477	4,106	13	116	3	17	422	3,888

There are a number of other miscellaneous chemical items given in 1928 as originating directly in the United States, but in no case does their value reach over 50,000 crowns, which amounts to the comparatively negligible value of about $1,500. Among these items purchased directly from the United States may be found, for instance:

Item	Metric tons	Crowns	Item	Metric tons	Crowns
Antimony	6.6	52,000	Sodium nitrite	15.0	38,000
Mastics	4.0	49,000	Creolin, lysol, etc	35.0	36,000
Nonperfumed soap and polish substitutes, etc	3.0	49,000	Shoe polish	7	16,000
Refined borax	19.0	40,000	Glue	1.3	14,000

THE AUSSIGER VEREIN

With three plants operating in Czechoslovakia, at Aussig, Hruschau, and Falkenov, and with participation in production with the Solvay soda concern and with other foreign and local chemical manufacturers, the United Chemical and Metallurgical Works (Ltd.) (Verein fuer chemische und metallurgische Produktion), of Aussig, represents the largest chemical enterprise in Czechoslovakia. The Aussiger Verein is said to produce over 60 per cent of the country's industrial chemicals.

Though the capital stock of Aussiger Verein is but 50,000,000 crowns, this figure does not give a true picture of the real value of the company. At the meeting on May 12, 1930, called to approve the company's so-called stabilization balance sheet as required by law, to revalorize assets to coincide more nearly with the present value of the Czechoslovak crown, it was given out that reserves amounted to 420,000,000 crowns (some $12,500,000), doubtless also a conservative estimate.

Again, the exchange value of the Aussiger Verein's securities issue was 970 crowns on May 15, 1930, against a par value of 200 crowns.

The company proposes to pay a 20 per cent dividend on 1929 business, or 40 crowns per share, on a net profit of 15,745,372 crowns, against 15,920,239 crowns in 1928, exclusive of amounts carried forward, namely, 1,371,476 crowns in 1929, to a total dividend-paying profit of 17,116,848 crowns against 16,857,426 crowns in 1928

Operating about 35,000 horsepower, the Aussiger Verein employs around 5,000 persons Its works consume around 500,000 metric tons of coal and coke annually, while the Aussig plant takes about 40,000,000 kilowatt-hours from its neighboring electric power plant

Its production is reckoned at better than 200,000 metric tons annually It maintains its own workmen's colonies to a considerable extent and promotes a generous program of welfare and relief for its employees

PLANT AT AUSSIG

The Aussiger Verein has its key plants at Aussig, on the Elbe, founded in 1857, and its directorial headquarters in Carlsbad, moved from Vienna in 1920 In its early development, the Aussiger Verein specialized on soda ash produced by the old Leblanc process This was abandoned in 1907, while its considerable range of heavy-chemicals production, including mineral acids, Glauber salts, bleaching powder, etc , was extended

This extension policy still occupies the company with new building construction at Aussig Present extensions are primarily designed to recover certain metals from residues from ore extractions and to increase production of titanium white (being made independently of any foreign affiliations) The company also operates a synthetic-ammonia plant at Aussig for making technical nitrogen products not for fertilizer

It is also notable that Aussig introduced manufacture of alizarine (anthraquinone) red in 1907 and is now making sulphur and azo dyes, but no indigo It is the only dye producer in the country Its production of dyes, 1,500 to 2,000 metric tons a year, is insufficient to meet domestic requirements, as indicated by an import of around 4,000 tons in 1929

Another operation at Aussig is that of tin extraction from scrap and manufacture of tin chloride jointly with the Th Goldschmidt Co , of Essen, Germany, by the latter's process This manufacture dates from 1911

The Aussig plant produces sulphuric acid in all concentrations, treating at least 65,000 metric tons of pyrites annually, equal to a minimum of 100,000 tons of 60° sulphuric acid This is one-third the current total Czechoslovak production of 300,000 tons or more, 50° Be While marketing some of this output, most is consumed in making its various inorganic and organic chemicals, notably superphosphate, Glauber-salt crystals, sulphate, sulphite, bisulphite, lithopone, etc

Its hydrochloric-acid by-product from manufacture of sodium sulphate, while partly sold, is mostly used at the works for making the chlorides of zinc, barium, and calcium, in addition to its use in preparing the intermediates and coal-tar dyes

A special line of the Aussig plant is electrolytic production of caustic soda, caustic potash, bleaching powder, liquid chlorine, metallic sodium, sodium peroxide, potassium permanganate, etc , in amounts sufficient to meet home requirements

The Aussig works are connected by cableway with coal pits at Karbitz, whence fuel enters the works, the empty skips being used then to remove ashes and other wastes from the factory

It is a matter of some historic interest that the Aussig plant was originally built to refine the salts of potash imported from the Stassfurt district of Germany

PLANT AT FALKENOV

Ground was broken for erection of the Aussiger Verein's carbide and calcium cyanamide plant at Falkenov on lignite deposits (for electrical energy) in the summer of 1916, and operation was begun in February, 1918 This district is favored with extensive reserves of high-grade lignite, of from 3,000 to 5,500 calories average but with spots yielding 8,000 calories Converted to electrical energy, this lignite feeds a power plant that serves the Falkenov plant of the Aussiger Verein with current requirements for a production of 30,000 to 35,000 metric tons of calcium cyanamide annually The Falkenov plant consumes 11 kilowatt-hours of electric current per kilo of nitrogen fixed in cyanamide

PROPOSED LIGNITE DISTILLATION PLANT

Construction is about to be begun at Falkenov on a new lignite-distillation and tar-cracking plant, to operate one of the company's own special processes This refinery expects to get light and heavy oils and solvents from methane. Hydrogen available from the operation will be used for purposes other than for an ammonia synthesis

The company's dependence on lignite has resulted in a connection with the Falkenauer Kohlenbergbau A G , of Lanz, which has a production of at least 350,000 tons annually A fusion with the latter is under contemplation, but this has been held up on account of taxes and other costs of such a transaction Furthermore, the Aussiger Verein acquired in 1917 deposits at Puellna near Brux (Most) to feed its works

PLANT AT HRUSCHAU

The Aussiger Verein acquired in 1911 the Hruschauer Sodafabrik von Miller v Aichholz, a transaction accompanied by a capital increase to 12,000,000 (pre-war) crowns This plant is making sulphuric acid, lithopone, sodium sulphide, activated carbon, cadmium sulphide, zinc chloride, zinc sulphide, etc It formerly produced Leblanc-process soda ash

Operation of a factory at Kralup, on the Moldau, acquired by Aussiger Verein in 1871, was abandoned in 1925 Another potassium-chlorate (electrolytic) plant at Schwaz was abandoned in October, 1928.

SOLVAY SODA-ASH ASSOCIATION

Jointly interested with the Belgian Solvay Co in operation of five non-Czechoslovak soda-ash enterprises, at Ebensee (Austria), Vioara de Sus (Maros Ujvar) (Rumania), Torda (Yugoslavia), Lukavac (Yugoslavia), and Montwy (Poland), the Aussiger Verein shares in operation of the Solvay soda-ash plant at Nestomitz, on the Elbe, called since 1924 Nestomitzer Solvay-Werke, Verein fuer chemische und metallurgische Produktion Solvay & Cie The soda-ash production at the above-mentioned Solvay works accounts for the total of Czechoslovak soda-ash production, around 90,000 metric tons annually against a capacity of 100,000 tons In addition to the production, around 25,000 tons was imported in 1929.

The Czechoslovak Nestomitz soda-ash plant was built by Aussig and Solvay in 1905 at a cost of 3,000,000 (pre-war) crowns

OTHER HOLDINGS

Aussiger Verein shares with the German Salzbergwerk Neu-Stassfurt in the electrolytic plant at Zscherndorf, near Bitterfeld, Germany, built in 1911

The joint operation with Th Goldschmidt, of Essen, in tin-salt production occasioned the founding in 1911 of Chlorzinnwerk, System Goldschmidt, Verein fuer chemische und metallurgische Produktion & Co

In 1914 Aussiger Verein entered an association with Hungaria, Kunstduenger, Schwefelsaeure und chemische Industrie A G, acquiring majority shares of the latter from the Anglo-Bank and Adolf Koehner's Soehne

In 1920 Aussiger shared in establishment of the Bohemian rayon factory, System Elberfeld, at Lobositz, Bohemia At about the same time, it acquired an interest in the Czechoslovak Silleiner Kunstduenger & chemische Industrie A G, taking over the Sillein factory of Hungaria

In 1921 Aussiger acquired one-half the shares of the Hruschauer Tonwarenfabrik A G (clay wares)

In 1922, Aussiger Verein acquired further mining shares of the Gewerkschaft Luetzow

To penetrate the field of inorganic-chemicals production in Yugoslavia, Aussiger bought interest in the Zorka, First Yugoslav Chemical Industry Co, in Subotica

Furthermore, Aussiger purchased interest in Chinoin Fabrik chemisch-pharmazeutischer Produkte A G, in Ujpest, Hungary, and is interested in Kastel Fabrik chemisch-pharmazeutischer Produkte A G, at Karlovas, Yugoslavia

In 1927 Aussiger Verein entered a process pool on activated carbon with the Urbain Corp, the German dye trust, and the Metallbank (Frankfurt)

In 1927, for erection of the direct ammonia synthesis at Marienberg, Moravska-Ostrava, Aussiger Verein acquired 25 per cent of the 40,000,000-crown share capital of the operating company, Czechoslovak Nitrogen Works Co (Czechoslovakische Stickstoffwerke A G), Marienberg

LIGNITE AND COAL

With a 1929 output estimated at 22,555,210 metric tons of lignite and 16,750,674 tons of coal, Czechoslovakia attained a peak postwar production of both items, the lignite output being almost 600,000 tons below the 1913 figure in comparable areas, with the coal output almost 2,700,000 tons more now than then Reduced to terms of bituminous, using the average ratio of 1 7 tons of lignite to 1 ton of bituminous, Czechoslovak production in 1929 would amount to calorific values of 30,018,434 tons of bituminous, ranking the country about fifth among European coal producers, after Great Britain, Germany, France, Russia, and Poland, but on an approximate par with Belgium

An export of 3,069,664 metric tons of lignite in 1929 was also a record in the postwar period, comparison with pre-war years being impossible, as separate comparable figures are not available in the trade totals of the Austro-Hungarian Empire On the other hand, Czechoslovakia imported some 500,000 tons more bituminous coal than were exported in 1929, an indication of more intensive industrial development without local capacity as yet to meet requirements for this fuel This is a striking contrast with net exports of coal in 1924, 1926, and 1927 The highest net export was almost 1,400,000 tons in 1926, due to the coal stoppage in Great Britain in that year

The curve of Czechoslovak development of lignite and coal production and trade is shown in the following figures

CZECHOSLOVAK LIGNITE AND COAL PRODUCTION AND TRADE

[In metric tons]

Year	Lignite			Coal		
	Production	Exports	Imports	Production	Exports	Imports
1913	23,136,796	(1)	(1)	14,087,205	(1)	(1)
1924	20,459,690	2,771,776	8,092	15,178,942	1,733,924	918,664
1925	18,604,678	2,674,450	29,161	12,558,992	1,410,865	1,544,000
1926	18,515,666	2,848,992	28,913	14,176,998	2,801,219	1,475,515
1927	19,620,637	2,919,728	24,101	14,016,300	1,885,230	1,726,426
1928	20,451,421	2,998,526	64,418	14,560,305	1,670,442	2,462,372
1929	22,555,210	3,069,664	107,226	16,750,674	1,854,285	2,330,649

[1] Comparable figures not available

LIGNITE

Though the above-noted 22,500,000-ton lignite production has but 13,750,000 tons of real coal value (at the ratio of 1 7 to 1) and is thus less in heat value than the 16,750,000-ton bituminous production, Czechoslovak lignite occupies a rather unique position in central European lignite trade It has a range of heat value, for instance, between 3,200 calories to 4,700 calories per kilo in surface-mined sorts that increases to 5,800 calories for ordinary shaft-mined varieties and even attains as high as 7,200 to 8,000 calories in special deep formations that present a lustrous, anthracite appearance These values are double those of other central European lignite yield Bohemian locomotives, for instance, are ordinarily fired with high-calorie local lignite

Czechoslovak lignite production amounts to about 65 per cent of corresponding output in the former Austro-Hungarian Empire The center of mining is within a narrow ellipse 180 kilometers long extending along the country's northwest Bohemian border from Cheb (Eger) to Aussig, where over 90 per cent of all Czechoslovak lignite is produced Within this ellipse, the community of Bruex (Most) represents the heart of the industry The Breux-Teplitz-Komotau basin, for instance, has visible reserves of 10,311,000,000 tons, it is calculated, with 15 to 30 meter seams that attain a maximum depth of 500 meters at Bruch-Osseg Most of this fuel is shaft mined, with recent modern machine installations for a maximum recovery, but outcrop is also of commercial importance and is surface mined after overburden removal The output of this particular basin is especially favored by being adjacent to the River Elbe, on which it is hauled economically to the best market, Germany, which takes some 93 per cent of the Czech lignite export under a special-delivery contract

In more extensive utilization of lignite energy, the Czechoslovak Government has erected a giant electric power station in the Bruex (Most) district, at Seestadtl, for overland distribution. This plant produces 75,000 kilowatts and carries a 100,000-volt line to Prague. Another but privately owned power station is located at Tuermitz near Aussig, with 34,000 kilowatts, serving the industries of northern Bohemia. Another State-owned electric power plant is located at Komorn on the Danube serving southern Slovakia, another at Oslawan in western Moravia.

Near the southwest limit of the 180-kilometer ellipse mentioned is another basin with commercial lignite. This is the occurrence about the neighboring communities of Falkenau, Elbogen, and Karlsbad. Reserves there are estimated at 1,108,600,000 tons, lying in three main seams, the upper being a maximum of 30 meters thick. The deepest deposits there are not exploited, however, for fear of contaminating the Karlsbad Springs.

Falkenau lignite runs from 3,000 to 5,500 calories per kilo average, but attains in spots the 8,000-calorie heat value mentioned above. The latter is unique as a gas lignite and stands a distant freight haul because of its high quality. Otherwise, lignite from this district, farther from the Elbe than the Bruex area, is consumed in the neighboring ceramics industry, while some is sent to German Saxony and Bavaria. The Aussiger Verein operates a calcium-cyanamide plant at Falkenau, producing 30,000 tons $CaCN_2$ annually now from electrical current generated from this lignite.

A third neighboring lignite occurrence at Eger (Cheb) doubtless connects by subterranean communication with the Falkenau deposits. Reserves are estimated at but 481,000,000 tons, this lignite analyzes high in water and consequently less in calorific value (2,800 to 3,000 calories per kilo), and therefore is partly processed by dehydration and pressing to briquets, supplying the bulk of some 200,000 tons of lignite briquets produced annually in Czechoslovakia. Some of this basin's lignite is also processed by distillation to artificial mineral wax, or ozokerite, used for electric insulation, rubber filler, paints, leather polish, etc.

Another but relatively unimportant lignite area in Czechoslovakia is in the neighborhood of Budweis, in southern Bohemia. This deposit has some 30,000,000 tons of reserves of a character that have attracted attempts to gasify it, although elsewhere distillation technique applied to lignite has not produced its potential yield of paraffin and light oil.

A location in southern Moravia, near Brno, or Goeding, produces comparatively small quantities of lignite also, destined for neighborhood consumption. Other lesser Czechoslovak lignite deposits are at or near Grottau, an outrunner from Lausitz deposits, at Krickerhaeu, in Slovakia, with 124,000,000 tons reserves.

The main enterprises producing local lignite are the following.

PRINCIPAL CZECHOSLOVAK LIGNITE PRODUCERS

Name	Location	Mines	Approximate annual production	Approximate number of miners
			Metric tons	
Bruex (Most) Coal Mining Co	Bruex (Most)	24	2,700 000	6,300
Bruch Coal Works Co	Teplitz Schonau	14	2,300,000	6,400
North Bohemian Coal Works Co	Bruex	5	2,200 000	4,100
State Mining Direction	do	5	2,100,000	2,400
Bohemian Commerce Co	Aussig	12	1,700 000	2,400
Mining and Industrial Works (formerly Joh Dav Starck)	Unter Reichenau	6	900,000	1 000
Dux-Bodenbach Ry	Karlsbad	5	800,000	1,600
Hanlova Coal Mining Co	Pressburg	7	300,000	1,500

BITUMINOUS COAL

Five separate locations in Czechoslovakia yield bituminous coal, of which the Ostrava-Karvin district in northern Moravia, contiguous to Upper Silesia, is by far the most important, accounting for 60 per cent or more of total Czechoslovak output, which, as noted, was 16,750,000 metric tons in 1929 The other four districts are the Schatzlar-Schadowitz district in northeast Bohemia, contiguous to German Lower Silesian bituminous, estimated to contain 78,000,000 tons of reserves, of 5,500 to 6,000 calories per kilo, the Schlan-Kladno-Rakonitz district in central Bohemia, just west of Prague, with 237,000,000 tons visible, of 5,000 to 6,000 calories per kilo, the Pilsen-Mies-Nuerschaner district, in southwest Bohemia, containing 46,000,000 tons of 6,800 to 9,200 calories per kilo, and the Boskowitz area near Rossitz (Rosice) and Oslawan, in central Moravia, containing 50,000,000 tons of 6,900 calories per kilo Total Czechoslovak resources of bituminous coal are estimated at 80 per cent of the producing capacity of former Austria-Hungary Coal (and lignite) is one of the country's chief exports and its most valuable mineral reserve

The Ostrava-Karvin district is estimated to hold a minimum of 4,733,000,000 tons of reserves in 366 seams, of which 100 are workable within depths of 600 meters, drifting up to 4 meters thick The heat value is 6,800 to 8,200 calories per kilo Mining operation there is more than half machinized, and further installations are constantly made

The special adaptability of Ostrava-Karvin coal to coking has developed a sizeable coke and by-product industry there, the district having 12 coke plants against 1 each in the Schadowitz and Rossitz locations Consequently, the center of the Czechoslovak iron and steel industry is there, though other mills are located along all Czech coal deposits except in northeast Bohemia No other Czechoslovak coal, however, and notably that of central and western Bohemia, is as fitted for coking as is the Ostrava-Karvin product

By-products —Its high volatile content, making it less suitable for household and industry, gives Ostrava-Karvin coal precedence for by-product output, including 25,700 metric tons of ammonium sulphate valued at 46,200,000 crowns, 16,300 tons of crude benzol valued at 21,400,000 crowns, and 70,300 tons of coal tar valued at 20,000,000 crowns

Czechoslovak coke production has been as follows

	Metric tons		Metric tons
1913	2,561,800	1927	2,423,081
1924	2,218,400	1928	2,815,973
1925	1,997,000	1929	3,159,850
1926	1,524,000		

As in the case of lignite, Ostrava-Karvin bituminous coal is also used to produce electric current to supply neighboring industry Likewise, overland power-distributing stations are at Prague, Reichenberg, and Pardubitz-Koeniggratz

The chief Czechoslovak coal operators include the following

Principal Czechoslovak Coal Producers

Name	Location	Mines	Coke plants	Annual production		Workmen
				Coal	Coke	
				Metric tons	*Metric tons*	
Czechoslovak Mining & Smelting Co	Maehrisch-Ostrau	9	4	3,000,000	720,000	13,000
Vitkovice Mines, Steel & Ironworks Corp	do	8	3	2,200,000	640,000	10 600
Ferdinands Nordbahn	do	7	1	1,400,000	410,000	7,900
Steinkohlenbergbau Orlau-Lazy	Domrau (Silesia)	4	1	1,400,000	160 000	6 600
Larisch-Moennich'sche Kohlen & Kokswerke	Karwin	5	1	1,340,000	60,000	5,500
Johann Wilczek'sche Kohlen & Kokswerke	Schlesisch Ostrau	4	1	640,000	90,000	3,100
Westboehmische Bergbau Aktien-Verein	Aussig	5		750,000		
Prague Iron Works	Prague	5		1,000,000		5,000
Steinkohlenwerke A G	do	6		420,000		3,200
Rossitzer Bergbau Ges	Segengottes Eibenschitz	5	1	320,000	30,000	

FERTILIZERS

With 40 per cent of its 54,206 square miles of land surface cultivated, growing principally grains, potatoes, and sugar beets, Czechoslovakia is a relatively heavy consumer of artificial fertilizers The fact that it is Europe's second producer of sugar beets (after Germany) and the world's first exporter gives rise to a correspondingly strong demand for superphosphate and sodium nitrate

Official figures of consumption and local production of artificial fertilizers are virtually the only chemical statistics published in the country In Czechoslovak Government publications the following figures are given as tracing the curve of artificial-fertilizer consumption, a development that shows generally a progressive increase in the postwar period

Consumption of Fertilizer in Czechoslovakia

[In metric tons effective]

Year (May 1 to Apr 30)	1925–26	1926–27	1927–28	1928–29
Ammonium sulphate	35,184	41,567	42,475	55,634
Chile saltpeter	42,766	42,334	71,675	46,435
Calcium nitrate		7,019	11,043	11,573
Cyanamide	18,731	22,664	30,036	37,406
Superphosphate	197,611	211,605	242,964	244,801
Basic slag	124,559	127,149	146,904	187 227
Bone meal	9,516	7,987	11,232	11,061
Humus phosphate	183	517		
Potash fertilizers	95 271	87,140	105,915	121,583
Other fertilizers	449	533	165	78
Animal waste	627	1,594	1,784	2,606

While operating now a 35,000-ton (6,000 tons of primary nitrogen) calcium-cyanamide plant at Falkenau in northwest Bohemia along with another 40,000-ton ammonium-sulphate by-product recovery in Moravian-Ostrava coke plants (8,000 tons of nitrogen), Czechoslovakian enterprise is nevertheless determinedly advancing fixed-nitrogen production in its direct synthetic ammonia plant at Marienberg, near Moravian-Ostrau, to meet a potential fertilizer consumption of around 30,000 to 35,000 tons of nitrogen

It is a fairly safe estimate that the Marienberg plant, built in 1928 to an initial capacity of 20,000 tons of ammonia (5,000 tons of nitrogen), has extended to double that amount, so that Czechoslovakia at present can rely on a domestic production total of some 22,000 tons of fixed nitrogen annually The Marienberg plant is extending to an unannounced capacity which may be reckoned as sufficient to make the country self-sufficient in quantitative if not qualitative nitrogen.

Synthetic nitrogen —Until 1928 Czechoslovakia had no synthetic nitrogen except the plant at Falkenau, belonging to the Aussiger Verein, producing calcium cyanamide In 1928 the so-called Czechoslovakische Stickstoffwerke A G (Czechoslovak Nitrogen Works) at Marienberg acquired license to operate the Claudé direct ammonia synthesis, utilizing the hydrogen from available coke-oven gas of the Moravska-Ostrava district Producing 2,000,000 tons of coke annually, this district has a theoretical 900,000,000 cubic meters of gas available Calculating 450 cubic meters of gas per ton of coke, yielding 75 kilos of ammonia, this makes available 150,000 tons of ammonia, or 120,000 tons of nitrogen, a supply, however, that the producers could, of course, never dispose of, even if produced, on a world market that is fast being oversaturated with fixed nitrogen However, Czechoslovakia still does not produce enough fixed nitrogen for home consumption, particularly of the nitrate forms The country's available nitrogen from home production is around 25,000 metric tons now, in ammonia by-product, synthetic ammonia, and cyanamide, against a demand for 30,000 to 35,000 tons for fertilizer alone, not to mention nitrogen for technical salts

Ammonium sulphate —Latest production figures of fertilizer ammonium sulphate in Czechoslovakia are 70,370 tons in the calendar year 1929, while official trade statistics show a net export of 22,205 tons This indicates a net supply of 48,165 tons, against 55,634 tons consumption in the fertilizer year ended April 30, 1929

The depressed condition of the Czechoslovak sugar industry, as well as the low buying power of farmers, affected sales adversely, so that domestic consumption was not as large as was hoped Nevertheless, consumption of ammonium sulphate increased over 13,000 tons

The net effect of increased ammonium-sulphate production by the Czechoslovak nitrogen works with the more or less constant output of the coke and gas plants was to create an export surplus in 1929 of 23,340 tons against 2,866 tons in 1928 While the calendar-year comparison with the fertilizer year is not exact, a 1929 consumption above visible supply would, of course, be covered by carry-over stocks on hand A carry-over of 5,706 metric tons of ammonium sulphate is given in official figures as of April 30, 1929, for instance

Czechoslovak ammonium-sulphate production is accounted for, first, by by-product ammonia in the sizable coke and gas industry, based to a considerable extent on the coking coal available in the Moravska-Ostrava coal deposits, contiguous with German and Polish Upper Silesia, and secondly, the direct ammonia synthesis plant of the Czeckoslovak Nitrogen Works Co, at Marienberg, which produced an average of 30 tons of NH_3 daily (10,950 tons annually) in 1929, and whose production is to be doubled, as indicated in a plan just announced to raise the company's capital from 40,000,000 to 100,000,000 crowns Incidentally, it is planned to inaugurate a production of nitric acid and nitrate salts, in addition to ammonia and ammonium sulphate The Marienberg operation is jointly owned by the Zivnostenska Bank of Prague, the Berg & Huetten Co (plants in Moravska-Ostrava), the Witkowitz Works with plants at Witkovice, and the Aussiger Verein

The Marienberg plant, however, does not convert all of its ammonia to fertilizer ammonium sulphate It transfers quantities of its synthetic ammonia to the so-called "Synthesia" company and to Czechoslovakische Explosivstoff A G, both at Semtine, near Pardubitz, which oxidize it to nitric acid and produce technical nitrogen salts or employ nitric acid in the production of explosives

CZECHOSLOVAK FERTILIZER AMMONIUM SULPHATE SUPPLY

[In metric tons]

Year	Production	Net exports (−) or imports (+)	Supply
1925	24,266	+16,521	40,787
1926	26,064	+288	26,352
1927	36,061	+2,344	38,405
1928	65,272	−1,757	63,515
1929	70,370	−22,205	48,165

Cyanamide —While the Marienberg plant is developing rapidly with modern synthetic-nitrogen production, the calcium-cyanamide operation is apparently gaining in quantitative output at the Falkenau plant of the Aussiger Verein This plant started production early in 1918 Calcium-cyanamide production has shown a decided upswing from a 1925 production of only 4,928 tons to over 30,000 tons in 1929 Production figures of fertilizer cyanamide and sizeable excess imports since 1925 indicate the following figures of net supply

CZECHOSLOVAK SUPPLY OF FERTILIZER CYANAMIDE

[In metric tons]

Year	Production	Net imports	Supply
1925	4,928	13,037	7,965
1926	13,662	10,693	24,355
1927	22,271	6,423	28,694
1928	25,154	7,908	33,062
1929	27,038	11,122	38,160

The fact that imports of calcium cyanamide continue to be considerable suggests that the Czechoslovak farmer, once becoming accustomed to this fertilizer, still wants it, a desire that is aided by the superphosphate cartel Fosfacid, of Prague, which also combines calcium-cyanamide promotion within its scope

Sodium nitrate—It can not be disputed that the Czechoslovak sugar beet and grain crops, on which the country is considerably dependent, can not thrive on forms of nitrogen at present produced in the country, namely, cyanamide and ammonium sulphate Sugar beets, particularly, thrive better on saltpeter nitrogen

While local nitrogen production has developed apace, imports of Chile saltpeter and cyanamide have not lessened, but show increases in 1929

Czechoslovakia is entirely dependent on Chile saltpeter imports, making no synthetic sodium nitrate as yet While a portion of these imports is consumed as fertilizer, a considerable share enters the manufacture of technical nitrogen (nitric acid, etc) In its endeavor to make the country self-sufficient in fixed-nitrogen production, however, agitation is now evident to put a duty on Chile saltpeter, now duty free, but this will doubtless depend on progress of local development of nitrate-nitrogen production

The amount of imports of Chile saltpeter here may be observed in following figures

	Metric tons		Metric tons
1924	62, 318	1927	52, 209
1925	54, 876	1928	55, 120
1926	46, 067	1929	95, 024

The value of 1929 imports of Chile saltpeter was 162,703,000 crowns, or about $5,000,000

From October to December, 1929, a further import is listed of 3,843 tons of "Guggenheim saltpeter," valued at $200,000

It is of interest, in connection with the Chile saltpeter situation, that the Chilean producers' combine plans to sell through an exclusive distribution agency after July 1, 1930, in lieu of the present system, which permits four or five distributors in delivery contract with individual Chilean saltpeter factors selling without respect to their cartel The new arrangement will stabilize prices and otherwise economize distribution This is, of course, a logical alternative, in view of the proposed announced effort to produce nitrate fertilizer nitrogen in addition to cyanamide and ammonium sulphate

Calcium nitrate.—Calcium nitrate so far is imported exclusively although it is evident that the country will manufacture this carrier to provide the desired nitrate form of fertilizer

Imports, which chiefly enter fertilizer consumption, were as follows.

	Metric tons		Metric tons
1926	1, 161	1928	17, 207
1927	9, 008	1929	11, 404

Czechoslovak nitrogen cartel—The Czechoslovak nitrates cartel is known as Sales Union of Czechoslovak Nitrogen Fertilizer Producers (Ltd), of Prague. It was formed July 1, 1927, and unites in sales the by-product ammonium sulphate producers and production of the Marienberg synthetic-ammonia plant

Although a typical European sales cartel, pooling and selling the production of its membership, this nitrogen cartel has wider functions than its German prototype, the Nitrogen Syndicate of Berlin, in that it promotes the sale of basic slag, the production of a potash refiner in Kolin, and other combinations It does not handle the calcium cyanamide produced exclusively by the Aussiger Verein, the latter being sold by the superphosphate cartel Fosfacid of Prague

SUPERPHOSPHATE

Czechoslovakia's root crops, notably sugar beets and potatoes, create a relatively strong demand for superphosphate, for which substantial amounts of American phosphate rock, hauled chiefly via the Elbe River, furnish raw material Out of an import of phosphate rock by Czechoslovakia of 146,000 metric tons in 1929, nearly one-third may be reckoned as of American origin, with the other two-thirds coming from North African deposits The total trade involves over 50,500,000 crowns, so that the American share might have been around 17,000,000 crowns or about $500,000 This figure should be somewhat discounted, as some imports enter from other than Africa and the United States The exact figure of imports from the United States is difficult to calculate

Though plant capacity for making superphosphate exceeds the domestic demand, Czechoslovakia perforce imports superphosphate under an international agreement, taking over 18,000 tons in 1929. The extent of import trade in phosphate rock and superphosphate (largely from Poland, Germany, and Italy) may be observed in following figures

CZECHOSLOVAK IMPORTS OF PHOSPHATE ROCK AND SUPERPHOSPHATE

[In metric tons]

Year	Phosphate rock	Super-phosphate	Year	Phosphate rock	Super-phosphate
1924	127,612	4,964	1927	100,215	18,605
1925	117,275	14,507	1928	142,605	15,414
1926	104,938	22,674	1929	146,163	18,500

Reexports of phosphate rock are practically nil, while an average of outgoing superphosphate in 1927 and 1928 may be put at 2,000 tons annually, although in 1929 it was only 284 tons

Ten enterprises, bound in the Fosfacid cartel of Prague, accounted for a production in 1929 of 225,384 metric tons of superphosphate, which may be compared with production in previous years in figures given below

CZECHOSLOVAK SUPPLY OF SUPERPHOSPHATE

[In metric tons]

Year	Production	Net imports	Supply
1925	206,991	9,699	216,690
1926	190,541	16,689	207,230
1927	201,958	16,286	218,244
1928	217,869	13,641	231,510
1929	225,384	18,216	243,600

The Fosfacid cartel of Prague, including the leading superphosphate producers, capitalized at 1,000,000 crowns, is essentially a superphosphate sales organization, but it also handles sulphuric acid used in this production and even the calcium cyanamide produced by the Aussiger Verein, its leading member It buys and sells for its membership and also maintains contact with the farmers through an information and advertising bureau to promote the use of balanced fertilizer—superphosphate, cyanamide, and even potash Members of Fosfacid are

1 Verein fuer chemische u metallurgische Produktion Aussig, Hruschau
2 Aktienfabrik zur Erzeugung von Chemikalien Kolin, Kolin, Pecky, Slany, Budweis
3 Silleiner Kunstduenger u chemische Industrie A G Sillein
4 Erste maehrische (Moravian) landwirtschaftliche A G zur Erzeugung von Kunstduenger u chemische Produktion, Prerau
5 Joh David Starck, Kasnau
6 A Schram, Prague, Lobositz and Postorno
7 Dynamit Nobel, Bratislava
8 Larisch-Moennich Petrowitzer Sodafabrik & Co , Petrovice
9 St Isztvaner Kunstduengerfabrik Eduard Weiser, Kosice (plant at Kostolany nad Hermadon)
10 Schwefelsaeure u Kunstduengerfabrik F J Auersperg, Slatinan

The last two plants produce superphosphate only, while the others produce superphosphate and sulphuric acid

In promoting calcium cyanamide, Fosfacid maintains certain connections with one Hungarian factory, Nitrogen, Kunstduenger und Chemische Industrie A G , of Budapest, and an Austrian producer, Stickstoffwerke A G , Russ bei Marburg (headquarters at Vienna) It had relations formerly with the Polish cyanamide works at Chorzow

OTHER FERTILIZERS

Basic slag—Czechoslovak agriculture consumed in 1929 a record amount of 187,227 metric tons of basic slag, by-product of the local steel mills from the phosphorus-bearing iron ores The output is, of course, dependent on the level of production of the iron-smelting branch Actual production in 1929, supplied primarily by the phosphate mills of Prager Eisenindustrie-Gesellschaft, in Kladno, and Witkowitzer Bergund Eisenhuettengewerkschaft, in Witkowitz, Moravia, amounted to 155,015 tons Increasing substitution of the Siemens-Martin process for the Thomas converter affects basic-slag output

CZECHOSLOVAK SUPPLY OF BASIC SLAG

[In metric tons]

Year	Production	Net imports (+) or exports (—)	Supply
1925	138 241	—24, 178	114, 063
1926	126, 132	—108	126, 024
1927	145, 297	—2, 878	142, 419
1928	154, 932	+22, 707	177, 639
1929	155, 015	+29, 798	184, 813

Basic slag is handled here by the nitrogen cartel, while by a curious paradox, calcium cyanamide is dealt in by the superphosphate cartel

Bone meal.—Czechoslovakia uses for fertilization another phosphoric acid (20 to 30 per cent P_2O_5) product in steamed and de-glued bone meal and bone ash, of which about 11,000 tons are consumed as fertilizer in 1929. The bone-refining branch, for bone fat, glue, meal, and spodium (bone charcoal), is one of the oldest in the country. Domestic requirements are estimated at some 30,000 metric tons annually, though imperfect collection methods make available from domestic sources only some 17,000 tons.

Fifteen plants treat bones for meal primarily. They are located chiefly in Prague (Ossa A. G. Fuer chemische Industrie), in Klattau (Klattauer Fabrik chemischer Produkte A. G. Vormals Kutscher), and in Liptau-St. Niklas (central Slovakia).

CZECHOSLOVAK SUPPLY OF BONE MEAL

[In metric tons]

Year	Production	Net imports (+) or exports (−)	Supply
1925	9,615	+1,083	10,698
1926	20,294	−533	19,761
1927	10,309	−1,051	9,258
1928	12,157	−964	11,193
1929	11,358	+1,452	12,810

To provide better collection of bones for bone fat, glue, meal, and spodium (charcoal), most Czechoslovak producers are organized in a purchasing and distributing cartel, Rohag (Rohprodukten-Handels-Gesellschaft m. b. H.) of Prague. This organization purchases available bones and allots them according to a contingent plan to the refiners. The cartel contract is on a 10-year renewal plan.

Furthermore, the Rohag acts as a purchasing and distributing medium for all the Czechoslovak leather-glue producers and promotes sales of production of some, if not all, bone-glue producers in the cartel.

Eight glue and gelatin plants, whose production is associated with bone-meal preparation, process some 20,000 tons of bones annually and produce around 3,000 tons of glue. Another eight plants consume as much tonnage of leather waste and make 2,000 tons of leatherwaste glue.

The Rohag also promotes sales of certain bone-glue producers, but not all that are organized for the purchase of bones.

Ossa A. G. fuer chemische Industrie, Prague, has acquired the 1,000,000-crown foundation of Klattauer Fabrik chemischer Produkte A. G. vorm. Kutscher, glue and gelatin factor, from the Bohemian Union Bank, the Bohemian Industrial Bank, and the Vienna Bank Union.

Ossa A. G. proposes to operate the Klattauer property as an independent unit, after reorganization of its production facilities. It is proposed to increase production of gelatin, for instance, which amounted previously to only 300 tons annually.

The Klattau company was founded in 1923 with an original capital of 8,000,000 crowns. This was reduced in 1925 to 1,000,000 crowns, but again raised to 4,000,000 crowns, dropping in 1927 back to 1,000,000 crowns.

Ossa A. G. was founded in 1926 to acquire Czechoslovak plants of the A. G. fuer chemische Industrie, of Vienna. The company produces bone glue. It owns the entire share portfolio of A. G. fuer chemische Industrie, in Tabor.

Ossa A. G. makes bone glue, fat, ash, and meal, as well as leather-waste products. It has some export to the United States.

Potash.—Except for its production of around 8,000 metric tons annually of potassium carbonate from beet potash by-product, vinasses, etc., Czechoslovakia is entirely dependent on imports of soluble mineral salts for potash fertilizer, although noncommercial alunite occurs in Carpathian Ruthenia. Until 1928, official trade figures bulk all potash-fertilizer imports in one figure, but in the last two years they give a more detailed itemization of imports, according to pure potash concentration of the natural or refined salt. Total potash-fertilizer imports in 1925 amounted to 93,849 metric tons, in 1926 to 80,982 tons, and in 1927 to 94,082 tons. More detailed figures of 1928 and 1929 imports follow:

POTASH-FERTILIZER IMPORTS INTO CZECHOSLOVAKIA

[In metric tons of potash]

Item	1928	1929
Kainite	47,917	39,390
Potash, 18 to 24 per cent K_2O	3,044	2,104
Potash, 38 to 44 per cent K_2O	63,761	69,057
Other potash	1,961	226
Total	116,683	110,777

It is thus observed that Czechoslovak potash imports, chiefly from Germany, but with some Polish contributions, attained peak in 1928 with 116,683 metric tons.

Imported potash is handled by Kali A. S., of Prague, capital 750,000 crowns, selling for the Franco-German potash cartel.

FERTILIZER PRICES

Prices of artificial fertilizers in Czechoslovakia are as follows:

PRICES OF FERTILIZER IN CZECHOSLOVAKIA

[In crowns per 100 kilos effective]

Item	1914	1930	Item	1914	1930
Ammonium sulphate	33 40	150 0	Potash net	10 10	79 4
Chile saltpeter	26 00	164 0	Superphosphate net	41	3 5

INDUSTRIAL CHEMICALS

The center of the Czechoslovak heavy-chemicals industry is in northwestern Bohemia, within or near an ellipse outlining valuable lignite deposits of particularly high calorific value. The Aussiger Verein plants at Aussig and Falkenov, located in or near this territory, account for the major share of the country's production of heavy chemicals. In the vicinity, on the Elbe river, offering a cheap means of transportation for essential chemical raw materials entering and finished production leaving the country, are located other important producers of heavy chemicals, such as the Nestomitz soda-ash works, the A. Schram superphosphate works, etc. Incidentally, the heavy-chemicals industry located in this region supplies advantageously the several flourishing Bohemian industries in the immediate neighborhood, such as the glass works, the soap industry (of which the concern of Georg Schicht at Aussig is the dominant factor), the brewing industry, the paper and textiles branches, etc.

The next most important center of Czechoslovak chemical development is located in the Moravska-Ostrava bituminous coal area, in the approximate north center of the Republic. This coal is especially fitted for coking, which has attracted an appreciable iron and steel industry of chemical interest in its by-product yield of basic slag. The by-product coking operation in a dozen plants in this district yields a sizeable supply of coal tar and its derivatives, ammonia for production of ammonium sulphate, nitric acid, etc., and a surplus of gas that has already attracted at least one enterprise, the Czechoslovak Nitrogen Works, at Marienberg, for its hydrogen separation for synthetic ammonia. At Semtin-Pardubitz is located the Czechoslovak Explosives Co., a virtual monopoly producer for industrial and military explosives, that is supplied with a share of the Marienberg plant's synthetic ammonia, used for making nitric acid for explosives manufacture. Again, the coal-tar supply available there is processed primarily by the Julius Reutgers Co., of Moravska-Ostrava, a connection of the German Ruetgers Works Co.

Elsewhere, Czechoslovak chemical plants are widely scattered but their importance is secondary to those in heavy production in the territories referred to above. The cities of Prague and Kolin in central Bohemia, close enough to lignite and coal to be classed within the Bohemian chemical area, are centers of a varied line of chemical production, but Prague is rather the distribution center for much of this country's chemical production. Another notable center of chemical production is in Bratislava (Pressburg) in southern Slovakia, where the Dynamit-Nobel and Nobel-Bickford industrial-chemical plants are located, while many other chemical enterprises are also there. The wood-distillation industry, utilizing the hardwood timber reserves of Ruthenia, are located in the eastern part of Czechoslovakia, formerly Hungary, the dominant producer in this line is the Clotilde Co., in Velcky-Bockov, followed by the Szolyva company in Svaljava, and the Bantlin Chemical Works of Perecin.

The salt situation, Government-controlled, is such that mines lying in eastern Czechoslovakia can scarcely compete with industrial salt imported, chiefly from Germany, because the freight haul from the latter is cheaper (via the Elbe mostly) to western Bohemian plants, chief consumers, than the movement from Solnohrad and Presov in Slovakia and Solotvina in Carpathian Ruthenia where local salt is recovered. Czechoslovakia does, however, supply its own consumption of edible salt.

ACIDS

Sulphuric acid.—Czechoslovak production of sulphuric acid has been increased in the last year or so to a current output of around 300,000 metric tons or more of 60 per cent concentration annually. This increase is reflected in a downward movement of imports from a peak of 3,863 metric tons in 1928 to only 885 tons in 1929. On the other hand, exports consistently exceed imports of fuming sulphuric (oleum).

A score of plants make sulphuric acid, this production being closely associated with manufacture of superphosphate, and ammonium sulphate, located chiefly in Aussig, Kolin, Prerau, Petrovice, Sillein, Kasniau, Lobositz, and Bratislava.

Raw material for production of sulphuric acid is primarily imported pyrites (221,842 tons in 1929), although some Slovakian pyrites serve as raw material, particularly in plants in eastern Czechoslovakia. The principal consumers are the manufacturers of superphosphate, but the glass, metals, and plastics industries are also heavy consumers. The following table shows the foreign trade of the country in sulphuric acid.

CZECHOSLOVAK TRADE IN SULPHURIC ACID

[In metric tons]

Year	Chamber		Fuming	
	Imports	Exports	Imports	Exports
1924	5	8,644	1.0	742
1925	78	8,139	0.5	66
1926	478	6,337	1.0	200
1927	1,126	11,824	1.0	754
1928	3,863	7,834	2.0	1,800
1929	885	4,240	20.0	1,180

Hydrochloric acid.—It is reckoned that Czechoslovakia produces from 40,000 to 50,000 metric tons annually of hydrochloric acid, both by the synthetic process and by interaction of sulphuric acid on ordinary salt, with a sodium-sulphate by-product yield. Production is virtually all turned into chlorine compounds, notably bleaches, for which there is an active demand in the textiles and paper industries, and chlorates for explosives and pyrotechnics.

The Aussiger Verein leads production of hydrochloric acid (also a by-product in sodium-sulphate manufacture), which it turns back into its production of bleach (potassium hypochlorite), its chlorides of zinc, calcium, barium, etc., and its dyes and intermediates, sulphur chloride, etc.

The country's excess annual export of hydrochloric acid may be roughly figured at about 1,000 tons.

Nitric acid.—Nitric acid is produced in Czechoslovakia by treatment of sodium nitrate with sulphuric acid, yielding sodium sulphate as a by-product. Present production of nitric acid, however, about 5,000 tons a year, is not sufficient for domestic requirements, in 1929 the imports amounted to 3,000 tons, more than double the exports.

Nitrogen salts.—A variety of nitrogen-salt products, some of which have already been mentioned, is produced. Plants in Prague, Brunn, and Pupuwek, Moravia, make potassium nitrate from the interaction of potassium chloride and sodium nitrate, but the demand was so large that 1,300 tons of the salt were imported in 1929. Local gas waters are exploited somewhat for a production of ammonium carbonate and chloride, while the cyanogen salts are available in waste gas masses and in molasses vinasse, the latter being treated by the Kaliwerke A. G. of Kolin.

Phosphoric acid—Only one Czechoslovak plant, Aktienfabrik zur Erzeugung von Chemikalien, in Kolin, makes phosphoric acid, along with elemental phosphorus for the local match industry

The firm of A Schram, of Lobositz, on the Elbe, makes sodium phosphate from bone ash

Organic acids—Owing to the development of its ancient wood-distillation industry, centered in the hardwood areas of eastern Czechoslovakia, the country is not only potentially self-contained, but exports acetic acid and other by-products of destructive wood distillation Czechoslovak production of acetic acid may be reckoned at 2,000 to 3,000 metric tons annually, according to one well-informed local authority The country exports an average of 1,000 tons of concentrated acetic acid annually, importing virtually none It might be noted that in 1927 exports reached 2,045 tons

Formic acid for consumption chiefly by local textile and leather manufacturers is made as a sideline in certain sulphuric acid plants here

The Aussiger Verein makes a line of synthetic oxalic acid and oxalates chiefly for consumption by the textile and leather branches

An estimate of production of formic and oxalic acids and their salts is around 3,000 tons annually

Tartaric acid is not produced in Czechoslovakia This acid and its salts must be imported, chiefly from Germany and Austria, although Chemosan Hellco A G, of Troppau, specializes to some extent in pharmaceutical tartaric-acid preparations

Joh David Starck Co, of Kasniau, has just gone into production of citric acid from molasses, proposing to develop sufficient output to permit an eventual export

The firm of Eng Burianek, of Ostromer, Bohemia, is producing lactic acid, and proposes to develop certain lactates, by a fermentation process from molasses and potatoes

Salicylic acid is produced by Kolner Aktien Fabrik zur Erzeugung von Chemikalien, in Kolin

BASES

Soda ash and sodium salts—Czechoslovakia's well-developed soap, glass, brewing (malt treatment), paper, and cotton-textiles industries are important consumers of soda ash The local production of 90,000 tons a year is not sufficient to supply the demand, and imports have ranged from 18,000 tons in 1924 to more than 25,000 tons in 1929

The only plant in Czechoslovakia producing soda ash is that of the Nestomitzer Solvay Werke at Nestomitz, on the Elbe River, a member of the Aussiger Verein

Production of caustic soda, reaching possibly 20,000 tons annually, is accounted for by the Aussiger Verein and the Solvay works at Nestomitz The latter operates the modern electrolytic bell process and is developing a production that dropped imports to 555 tons in 1929 against a peak of 2,270 tons in 1924

CZECHOSLOVAK FOREIGN TRADE IN SODA ASH AND CAUSTIC SODA

[In metric tons]

Year	Calcined		Crude carbonate crystals		Caustic soda (solid)	
	Imports	Exports	Imports	Exports	Imports	Exports
1924	18,129	1	351.0	0.3	2,270	1.6
1925	20,812	-----	21.5	2.0	1,295	11.0
1926	19,176	-----	1.8	8	453	37.0
1927	18,154	24	12.4	1	9	4.0
1928	25,839	10	12.0	1.6	1,067	21.0
1929	25,254	3	25.0	22.0	555	35.0

Hydrous sodium sulphate and anhydrous salt cake are made by the Aussiger Verein and in smaller quantity by 14 other plants. It is estimated that current annual production reaches around 25,000 tons of sodium sulphate, consumed mostly by the industries making glass, ultramine, sulphate cellulose, etc. Production is somewhat less now than previously, owing to increasing preference for soda ash by local glass manufacturers.

Most producers make sodium sulphate by treating ordinary salt with sulphuric acid, others process to sodium sulphate the sodium bisulphate by-product from nitric-acid manufacture. It is interesting to compare these processes with that used by the Kaiseroda works in Germany (Wintershall potash concern), which freezes solutions of its waste sodium chloride and magnesium sulphate to produce sodium sulphate and magnesium chloride.

Still insufficient in home supply, Czechoslovakia imported 5,157 tons of Glauber salt in 1929 against exports of 1,381 tons. Imports are mainly from Germany.

The Aussiger Verein, leading in this production, supplies Czechoslovakia with the bulk of its sodium sulphide, used in dyeing and tanning processes. Its annual output may be around 3,000 tons.

Another 3,000 tons of sodium sulphite and perhaps 1,000 to 2,000 tons of sodium hyposulphite, used as antichlor, bleach, and in photography, are produced in Aussig, in Troppau and in Zuckmantel near Teplitz. Czechoslovakia exported 1,565 metric tons of sulphite, bisulphite, and hyposulphite of sodium in 1929 compared with imports of only 44 tons.

Again, a few smaller enterprises make some 4,000 tons annually of water glass, or sodium silicate (and potassium silicate), for consumption mainly in the soap, textile, and petroleum-refining industries.

The Aussig works also produce some metallic sodium, sodium peroxide, and sodium perborate.

Compounds of potassium.—Czechoslovakia produces, chiefly from residual wastes in its spirits and sugar industries but also from wood ash and wool, about 8,000 tons annually of potassium carbonate. The Kolner Spiritus und Pottasche Fabrik A. G. and the Kaliwerke A. G., both of Kolin, are identified with this production. It has already been noted that Kaliwerke A. G. figures in production of sodium cyanide from its mollasses vinasse, source also of some carbonate of potassium. It is notable that Czechoslovakia exports some 2,000 tons annually of potassium carbonate.

This industry also produces lesser quantities of muriate and sulphate of potash from its available wastes

Of smaller importance is production of caustic potash, made electrolytically by Aussiger Verein in an operation paralleling that of caustic-soda manufacture

While its caustic-potash (solid) trade, involving 46 tons exports and 18 tons imports in 1929, is too inconsiderable to trace, an appreciable export trade is evident in potassium carbonate

CZECHOSLOVAK FOREIGN TRADE IN POTASSIUM CARBONATE

[In metric tons]

Year	85 per cent or less K_2CO_3		85 per cent or more K_2CO_3	
	Exports	Imports	Exports	Imports
1924	243		174	66
1925	716		787	
1926	891		1,447	
1927	1,568		699	1
1928	1,410	4	759	57
1929	532	60	1,450	5

Other bases —Electrolytic production of hydrochloric acid, of course, permits other commercial recoveries, as of chlorine and its compounds, notably bleaches (hypochlorites), for which Czechoslovakia has a good demand in its textiles and paper industry, and of chlorates for explosives and pyrotechnics Thus the Aussiger Verein plants at Aussig and Hruschau, and others at Zuckmantel and Velky-Bockov are partly specialized on bleaching salt (potassium hypochlorite) made in revolving furnaces and with a content of 36 per cent effective chlorine, sold to the textile mills for dyes manufacture and as disinfectant and insecticide

The above-mentioned plants along with others in Brux (Most), Prague, and Olmutz make also the chlorates of potassium, while in Aussig, Komotau, and Bratislava are produced barium chloride, used against boiler-scale formation The latter is produced sufficiently to permit an export that amounted to 2,295 tons in 1929 (imports 4 tons).

The Aussiger Verein now produces liquid chlorine, used chiefly in the cellulose and paper industry, from electrolysis of muriate of potash, the latter being procured partly from domestic raw materials, notably from the residual wastes of the alcohol and sugar industries.

Aussig also makes sulphur chloride, and at Hruschau is produced some 2,000 tons annually of chlorsulfo acid, for the rubber-vulcanization process, while other plants make zinc chloride, used as a wood preservative for railway ties, and tin chloride, reduction agent and mordant in dyeing and printing plants

METALLIC COMPOUNDS

The Bohemian glass industry creates a demand for compounds of fluorine for etching, frosting, and making special glass that is met by manufacturers in Aussig, and elsewhere, producing hydrogen fluoride, sodium acid fluoride, artificial cryolite (calcium fluoride), etc.

Compounds of aluminum, used in dyeing, paper treatment, and tanning, all of which are sizeable industries, are made by certain factors, chiefly Montan & Industrialwerke vorm Joh David Starck, in Kasnian near Pilsen, making chiefly alum (potassium-aluminum sulphate) and pure aluminum sulphate Some aluminum acetate is made in Rumburg and in Zuckmantel

Sulphates of iron, copper, and zinc, for varied branches of industry but for horticultural insecticide (vineyards) especially, are made in Aussig, Komotau, and Petrovice, the leading producer being the Phoenixhuetter Kupfervitriolfabrik, in Eperies, Slovakia Production of these sulphates permitted an export of iron sulphate in 1929 amounting to 2,885 tons

Chrome salts are made in Nestomitz, Kasnian, and Zuckmantel

Manganates and permanganates of potassium and sodium, disinfectants, and oxidizing agents are made in Aussig and Komotau Chromium and manganese ores, however, must be imported

Scattered plants make the compounds of magnesium, chiefly chloride, sulphate, and carbonate, for wood preserving, textile dressing, paper sizing, filler, and source of carbon dioxide These compounds are made from German potash salts

Borax raw material is, of course, a substantial import, around 3,000 tons entering the market in 1929 for refining by local factors, chiefly in Aussig (Aussiger Boraxwerke Baker and Geistley and Borochema, Masata & Co , with a plant at Uhrineves)

COAL-TAR DISTILLATION

The coke and gas plants, primarily in the Moravska-Ostrava district, produced 130,000 metric tons of coal tar in 1929, further fractionated chiefly by the Julius Ruetgers Werke, of Moravska-Ostrava. Still insufficient in supply, Czechoslovakia imported in 1929 around 10,000 tons of coal tar above exports

Comparative production of coal tar and fractions is given in the following figures

CZECHOSLOVAK COAL TAR BY-PRODUCT PRODUCTION

[In metric tons]

Item	1927	1928	1929	Item	1927	1928	1929
Total	100,000	120,000	130,000	Phenols	270	300	430
				Cresols	810	900	700
Benzols	20,000	25,000	29,000	Naphthalene	950	2,600	3,000
Toluol, pure	640	900	1,060	Crude anthracene	120	160	260
Xylol, pure	60	100	120	Wood-preserving oils (heavy coal tar oils)	26,000	28,000	32,000
Solvent naphtha	1,050	600	700				

The Czechoslovak coal-tar industry now markets a line including prepared tar and pitch grades, tar oils and lubricants, carbolineum, coal-tar asphalt (pitch), roof board, insulatings, etc Leading consumers are the some 70 roof-board producers, whose consumption may be gauged from the fact that they dispose of over 100,000 tons annually They are associated in a purchasing and sales cartel, primarily to stabilize prices

Some plants, particularly the Aussiger Verein, also refine coal tar to pyridine, phenol, and toluol for solvent, disinfectant, and denaturing purposes Further special processing produces trinitrophenol (picric acid) and trinitrotoluol for explosives and salicylic acid for pharmaceuticals and synthetic aromatics

Available foreign trade figures indicate an export of 13,735 metric tons of coal and lignite tar pitch in 1929 (imports 2,737 tons) and 26,917 tons of benzol-series oils, including wood-preserving oils (imports 146 tons)

Wood-preserving cartel —Consumers of heavy coal-tar oils for wood preserving are associated in a cartel, so-called "Prodimp" (abbreviating its Czechoslovak name) sales office of United Wood-Preserving Works in Czechoslovakia (Ltd), of Prague This cartel is also concerned with rationalization of consumption by its membership, which includes the following

1 Boehmerwald Holzimpraegnierwerke A G , Strakonitz
2 Chemische Fabrik und Holzimpraegnierwerk A Formandl, Brodek near Prerau
3 "Konsea" A G Holzimpraegnierwerke und Chemische Fabriken, Prague
4 Boehmisch-Maehrische Holzimpraegnierwerke A G , Bruenn
5 "Hrdliczka" Holzimpraegnierwerke, Bystritz

Consumption capacity of the Czechoslovak wood-preserving works is said to be around 500,000 cubic meters of wood annually

Coal-tar dyes —The figure of production of coal-tar dyes by the sole manufacturer, the Aussiger Verein, is reckoned at 1,500 to 2,000 tons annually Against this figure, imports of all coal-tar dyes listed in official trade figures amounted to about 4,500 metric tons in 1929

The Aussiger Verein produces sulphur and anthraquinone dyes, but no indigo

NET IMPORTS OF COAL-TAR DYES INTO CZECHOSLOVAKIA

[In metric tons]

Year	Sulphur black	Anthraquinone dyes	Indigo	Other dyes
1924	329	221	55	3, 247
1925	334	86	196	2, 404
1926	412	73	338	1, 661
1927	463	139	388	2, 345
1928	449	111	432	2, 790
1929	420	120	443	3, 107

While the Julius Ruetgers works has a reported capacity of consumption in its three plants of 100,000 metric tons of crude tar and 25,000 tons of crude benzol, certain other small refiners are extending their production range to include light, heavy, and anthracene oils, and in cases to fine chemicals, although the latter are not exploited greatly "Medica" Aktienfabrik chemischer und therapeutischer Produkte, of Prague, is identified with coal tar pharmaceuticals production

WOOD DISTILLATION

While mention has already been made of production of acetic acid by the destructive distillation of wood, the local producers, located chiefly in the hardwood areas of Carpathian Ruthenia, supply considerable amounts of other wood-distillation products, including wood charcoal, lime acetate, methanol, wood tar, and acetone, all of which are potential exports Present lime-acetate production is figured at from 15,000 to 17,000 tons annually, while wood-methanol output is reckoned at from 3,000 to 4,000 tons The seven wood-distillate producers are

1 Bantlin'sche Chemische Fabriken A G , Perecin, Ruthenia
2 Chemische Fabrik Smolenice Josef Palffy, Smolenice, Slovakia
3 Kommanditgesellschaft Dr Blasberg & Co , Likier, Slovakia
4 Clotilde A G fuer Chemische Industrie, Velky Bockov, Ruthenia
5 "Szolyva" Holzverkohlungs A G , Svaljava, Ruthenia
6 Blumberg & Rindskopf, Zuckmantel, Bohemia
7 J Roethlingshoefer, Drozdov, Bohemia

A former large producer, Union A G , of Aussig, is reported in liquidation, its production to be taken over by the Clotilde company.

The cartel of the Czechoslovak wood distillers, so-called "Acetic" Sales Office for Wood Distillation Products (Ltd), of Prague, formed in 1920, includes the above companies

The following table gives the Czechoslovak foreign trade in wood distillates

NET EXPORTS OF WOOD DISTILLATES FROM CZECHOSLOVAKIA

[In metric tons]

Year	Wood charcoal	Calcium acetate	Wood tar	Methanol	Acetone	Concentrated acetic acid
1924	29 023	1, 246	[1] 149	1, 915	973	782
1925	42, 393	1, 394	[1] 92	2, 018	866	1, 456
1926	51, 779	3, 065	[1] 27	2 721	655	1, 422
1927	57, 429	4, 546	[1] 107	2, 602	483	2 039
1928	63, 331	6, 480	603	3, 723	676	1, 689
1929	58, 231	8, 819	[1] 19	2, 869	541	654

[1] Net imports

ALCOHOL

Alcohol production amounted to 615,887 hectoliters in the year ended August 31, 1929, a production that permitted an export of 3,395 metric tons in the calendar year 1929 The bulk of production is by agricultural and industrial enterprises, respectively accounting for approximately 70 per cent and 30 per cent.

Regulation of alcohol production and distribution is a Government monopoly provided for by decree of August 1, 1923, which transferred the alcohol administration to a private cartel, Company for Alcohol Sales, of Prague, capital 20,000,000 crowns It is directed by representatives of the agricultural cooperative distillers, industrial distillers, and alcohol refiners

Under the Government decree, production is allocated among agricultural and industrial distillers on an annual contingent plan; imports (on which the duty may be considered virtually prohibitive) are subjected to Federal permit, and prices are fixed

Production is primarily from potatoes, molasses, sugar beets, malt, corn, and other materials

CONSUMPTION OF RAW MATERIALS IN CZECHOSLOVAK ALCOHOL PRODUCTION

[In metric tons]

Year	Potatoes	Molasses	Sugar beets	Malt	Corn	Other
1924–25	180, 772	110, 464	51, 716	10, 021	15, 876	1, 480
1925–26	234, 896	103, 895	61, 836	11, 502	7, 993	1, 357
1926–27	142, 757	107, 683	70, 091	8, 517	12, 723	1, 227
1927–28	306, 087	87, 659	56, 410	13, 557	476	1, 435

Corresponding production therefrom was as follows

	Hectoliters		Hectoliters
1924–25	563, 872	1927–28	585, 287
1925–26	580, 010	1928–29	615, 887
1926–27	515, 857	1929–30 (estimated)	644, 000

A 20 per cent increase in alcohol production in 1930–31 was provided for by the Ministry of Finance to relieve a situation of potato overproduction

The alcohol monopoly also administers production of "Dynalkol," a gasoline-alcohol mixture for motor fuel comparable with the German "Monopolin "

OTHER PRODUCTS

Lacquers —It is estimated that Czechoslovakia produces about 3,000 metric tons of lacquers annually, this industry consuming rosins, copal, shellac, amber, etc , in solution in making lacquers, varnishes, polishes, etc

The industry is widely scattered, but lies mainly in Bohemia, with Prague and Aussig as the chief centers Supplied, however, with special lacquers from abroad, local production is doubtless oversaturated All kinds of lacquers are made locally

Mineral pigments —Czechoslovak mineral-pigment plants produce a considerable variety of the pigments, including zinc white, gray, and lithopone in quantities which may approximate 20,000 metric tons annually, permitting an export Another half-dozen plants also make lead pigments, notably white lead, etc , but they must be imported in addition

Ultramarine is also produced in an approximate amount of 3,000 to 4,000 tons annually, while other manufacturers produce yellow, red, and green earth pigments

A modest effort is made, notably, at Hruschau, to produce quality carbon black, but Czechoslovakia still imports some quantities

Furthermore, Czechoslovakia produces considerable print colors, but imports, under treaty arrangement, from Germany, according to the amount of local production

Tanning extracts —Local growths of chestnut, oak, and pine supply plants, chiefly in Wilsdorf-Bodenbach and Probstau-Teplice, with a share of their raw material for producing tanning extracts, while other woods are imported It is calculated that Czechoslovakia has a capacity for consumption of 120,000 tons of barks and wood, and produces some 50,000 tons of tanning extracts annually

Soaps and candles —Led by the Georg Schicht A G ("Elida"), of Aussig, capital 70,000,000 crowns, and the "Saponia" United Bohemian Soap and Candle Factories Co , of Prague-Nusle, with factories in Jaromer, Oderberg, etc , the Czechoslovak soap industry accounts for around 80,000 tons of soap annually, some plants producing a line of candles amounting to about one-half this country's output of 6,000 tons a year The soap plants make a complete range of product, including powders

Glycerin —A few of the local soap plants recover by-product glycerin in their manufacture, perhaps some 3,000 tons annually, while more crude glycerin is imported for refining and reexport

Cosmetics and essential oils —Manufacture of fine soaps, cosmetics, and perfumes, as of the "Elida" Parfum Gesellschaft m b H., of

Aussig-Schreckenstein, subsidiary of the Schicht company, takes considerable quantities of essential oils and essences, largely imported, as indeed are toiletries in general About 15 plants make cosmetics and perfumes

Local essential-oil production is restricted to a few domestic growths, including coriander, juniper, fennel, caraway, and angelica Other oils, produced from various plant components, primarily of domestic origin, are dill, hops, paisley, pine needle, etc

Available trade figures indicate that Czechoslovakia imported 23,000 kilos of laurel (bay), rosemary, juniper, and light camphor oils in 1929, along with another 191,000 kilos of essential oils not specially mentioned Exports of both were but 20,000 kilos in the year

Pharmaceuticals —Czechoslovak pharmaceutical production is not specially advanced, so that the country imports, subject to official analysis and approval of medicinals, largely from Germany

The Aussiger Verein had a pharmaceutical department making synthetic fever-reduction agents, but abandoned this production, Oderberger Chemische Werke A G has a saccharine-manufacturing monopoly, the Medica company of Prague and elsewhere makes a range of products, including radioactive waters, compresses, and tablets, a field of research and development also followed by the Aktienfabrik zur Erzeugung von Chemikalien, of Kolin, which made a contract in 1927 for use of radium belonging to the State works at Joachimsthal Again, a plant in Troppau specializes to some extent on tartaric-acid preparations, bandages, and vaseline Local development of bandages and compresses permits some export

Matches and Explosives —The "Solo" Vereinigte Czechoslovakische Zuendholz und Chemische Fabriken A G, with headquarters in Prague, but with plants widely scattered throughout the Republic, has a virtual monopoly production of matches

A state-controlled monopoly on explosives for military and industrial consumers applies to the Czechoslovak Explosives Co (Czechoslovakische Explosivstoffwerke A G), with Prague headquarters, but with its key plant at Semtin, near Pardubitz, in Bohemia This company is said to produce some 5,000 tons of industrial explosives annually, including safety explosives of ammonium nitrate, nitroglycerin, powders, mononitrotoluol, dinitrotoluol, and trinitrotoluol, nitrocellulose, collodion, picric acid, bisulphate, zentralit, diphenylamine, nitric acid, etc

Ignition articles, however, are further manufactured by certain other works, led by the Dynamit-Nobel group, chiefly in Bratislava, the Zuendhuetchen und Patronenfabrik vorm Sellier und Bellot, and G Roth A G, of Bratislava The State monopoly on explosives has forced these works to the alternative of making heavy chemicals also

Leading Czechoslovak factors in this branch, organized in their so-called "Armaz" cartel, include.

1 Skoda Works, Prague, main plant in Pilsen
2 Czechoslovak Explosives Works Co , Prague (Semtin)
3 Kapsel und Munitionsfabrik, vorm Sellier und Belot, Prague and Bratislava
4 Pressburger Munitionsfabrik und Eisen und Metallgiesserei J Roth A G , Bratislava
5 Dynamit-Nobel, Bratislava
6 Nobel-Bickford, Trencin
7 Schram, Kunstduenger und Schwefelsaeurefabrik, Prague
8 Jan Anders, Chrast near Pilsen
9 Janecek, Prague
10 "Solo," Budweis, Schuettenhofen, Lipnik, Troppau, Polstrum, and Tuernau (match monopoly)
11 Srb u Stys, Prague
12 J Hoffmann, Pilsen
13 Nimrod Factories, Kryvy
14 Hajec, Prague
15 J Rivnac, Karlin

[Properly qualified American firms interested in seeking new Czechoslovak business may procure a selected list of prospective agents upon application to the Chemical Division of the Bureau of Foreign and Domestic Commerce]

APPENDIX

PRINCIPAL CZECHOSLOVAK CHEMICAL ENTERPRISES

[Where feasible, the names of Czechoslovak chemical companies and geographical locations are rendered in the German language, as more familiar to American readers]

Company	Head office	Plants	Capital	Production
			Crowns[1]	
United Chemical & Metallurgical Works (Ltd) (Verein fuer chemische und metallurgische Produktion)	Carlsbad	Aussig, Hruschau, Falkenau	50,000,000	Acids, alkalies, carbide and cyanamide, tin chloride, coal tar dyes, superphosphate, Glauber salts, etc
Joint-Stock Factory for Production of Chemicals Kolin (Aktienfabrik zur Erzeugung von Chemikalien Kolin)	Kolin	Kolin, Pecek, Budweis, Schlan, Neu Erlaa b Vienna, St Joachimsthal	20,000,000	Superphosphate and other chemical fertilizers acids, Glauber salt aluminum salts, zinc chloride, pharmaceutics (salicylic preparations), radio active therapeutics
A G Dynamit Nobel	Bratislava (Pressburg)	Bratislava (Pressburg)	13,200,000	Acids, sulphur carbide, Glauber salt, oxygen, mines ignition fuzes, chrome alum, barium chloride, superphosphate
"Solo" United Czechoslovak Match & Chemical Factories Co ("Solo" Vereinigte Czechoslovakische Zuendholz und chemische Fabriken A G)	Prague	Banska Bystrica, Budweis, Leipnik, Susice (Schuettenhofen)	52,000,000	Matches (virtual monopoly)
"Medica" Joint-Stock Factory of Chemical and Therapeutic Products (Medica Aktienfabrik chemischer und therapeutischer Produkte)	do	Prague (pharmacy), Vysocan (chemo-therapeutic), Kralup (tar)	4,000,000	Chemo therapeutics (radioactive preparations), coal-tar pharmaceutics
United Carborundum & Elektrite Works Co (Ver Carborundum und Elektrit-Werke A G)	Neu-Benatek	Alt-Benatek (and Dresden, Germany)	25,000,000	Carborundum and electrite abrasives
Wilsdorf Tanning Extract Works Co (Wilsdorfer Gerbextraktwerke A G)	Wilsdorf near Bodenbach	Wilsdorf	6,000,000	Tanning extracts
Bohemian Industry for Production of Carbonic Acid and Oxygen	Prague	Hlubocep	2,500,000	Carbon dioxide and oxygen
"Aktinofot" A G	do	Prague Podol, Prague-Pankrac	500,000	Highly sensitive photo developing paper ("Aktinosa")
"Bitumuls" A G	do	Komarov	1,000,000	Cold asphalt
Czechoslovak Explosives Co (Czechoslovakische Explosivstoff A G)	do	Semtin-Pardubitz[2]	60,000,000	Explosives monopoly for industry and military, black powder, smokeless powder, dynamon, dynamite, methanite, nitroglycerine, trinitro toluol, picric acid, sodium bisulphate, etc
Czechoslovak Nitrogen Works Co (Czechoslovakische Stickstoffwerke A G)	do	Marienberg n Moravian Ostrava	40,000,000	Direct ammonia synthesis (Claude process), ammonium sulphate, etc
Chemical Products & Colors Co (Fabrik chemischer Produkte und Farben A G)	Prague Karlin	Prague Vysocany	2,300,000	Indigo papers, extracts, and colors
Kali A S	Prague		750,000	Selling potash of the German and French Potash Syndicate
"Konsea" Co, Wood-Preserving Works and Chemical Factories (Konsea A G, Holzimpraegnierwerke und chemische Fabriken)	do	Sobeslav	7,200,000	

Artificial Rosin Factory Co (Kunstharzfabrik A G)	do	Postrelmov-Hohenstadt	700 000	Artificial rosin
Pharmaceutical Works "Norgine" Co	do	Aussig	1, 500 000	Pharmaceuticals
"Ossa" A G fuer chemische Industrie	do	Vysocany and Privoz	8, 000, 000	Bone glue "Ossa" belongs to the Scheidemandel Co, Berlin, "Ossa" owns all shares of A G fuer chemische Industrie, Tabor und Klattauer Fabrik chemische Produkte A G, Klattau
"Ostia" Co *for* Chemical & Mineral Oil Industry (Ostia A G fuer chemische und Mineraloel Industrie)	do	Aussig and Novy Bohumin	2, 000, 000	Oil, tar, and rosin distillates
Perfumery & Fine Soap Factory F Prochaska Co	do	Prague	8, 000, 000	Perfumery and soap
Prague Paint & Lacquer Factory Co	Prague-Vysocan	Vysocan	5, 000, 000	Paints and lacquers
Roche Co *for* Chemo Pharmaceutic Products	Prague		3, 000, 000	*Chemo-pharmaceutical products*
"Rustika" Trading Co	do		7, 000, 000	Central organization of artificial fertilizer dealers
"Sapi" Co for Perfumery Import	do			Perfumery
"Synthesia" chemische Werke A G	do		12, 000, 000	Founded by Czechoslovak Explosives Co (above), "Synthesia" produces at Semtin nitric acid, *nitrogen salts, and other nitrogen carriers*
"Union" Co for Chemical Industry (Union A G fuer chemische Industrie) (In liquidation, to be taken over by "Clotilde," below)	do	Aussig	10, 000, 000	Founded by Zivnostenska Bank (Prague) with holdings by "Holzverkohlungs Industrie AG", Constance, and the Bantlin Chemical Works, "Union" began in 1921 with manufacture of acetic acid, *since extended to other products*
United Chemo-Technical Factories Co (Ver chemische technische Fabriken A G)	do	Lieben and Eger	1, 000, 000	Fly catchers, glue and cosmetics
Gehe Werke A G	Aussig		[3] 2, 500, 000	Malt and pharmaceutical fluid extracts, tinctures, etc
E Heuer, chemische Fabrik A G	do		1, 000, 000	Ethers, *absolute alcohol, chloroform, collodium*
Zuendwaren (Match) Fabrik A G	Banska Bystrica		5, 000, 000	Matches, merged by "Solo" (above) Jan 1, 1928
A G fuer chemische Industrie	Bratislava		2, 000, 000	Selling monopoly explosives to Slovakia and Carpathian Ruthenia
"Chemica" chemische Fabrik A G	do		500, 000	Oils, technical fats, boiler-scale remover
Lysoform A G	do		200, 000	Trading in cosmetics and pharmaceuticals
"Medica" (Slovak branch)	do		2, 000, 000	Pharmaceuticals, this is a branch of the Prague "Medica" (above)
Nobel-Bickford A G	do		2, 000, 000	Ignition fuzes, this company belongs to Dynamit Nobel (above)
Company for Exploitation of Industrial Gases (A G zur Verwertung von Industriegasen)	do		500, 000	Oxygen, nitrogen, 100 per cent anhydrous sulphurous acid, and other industrial gases
Bohemian-Moravian Wood-Preserving Works Co (Boehm-Maehr Holzimpraegnierungswerke A G)	Brunn	Budweis, Rositz, Rehdoerfel, Kladno, Rohatetz, Opatska	600, 000	Wood preserving
"Vulcan" Match Co	Cinadova		2, 000, 000	Matches, wood wire, and match boxes
Antimony Mining & Smelter Works Co	Cucma		1, 000, 000	Trading in minerals and chemical products
Kaliwerke A G	Kolin		4, 000, 000	Cyanides, ammonium, sulphate potash from vinasse
Chemische Fabrik A G	Komorav n Troppau (Silesia)		800, 000	Lacquers, paints, shoe polish, special oils, etc
Glue & Fertilizer Manufacturing Co (Leim u Kunstduengerfabrik A G)	Lipt Sv Mikulas		2, 000, 000	

[1] A crown equals 2 964 cents

[2] The new factory in Semtin, built in 1928, is operated by an independent company, Synthesia Chemische Fabrik A G, Prague

[3] Shares partly owned by Gehe & Co, Dresden, Germany

Principal Czechoslovak Chemical Enterprises—Continued

Company	Head office	Plants	Capital	Production
			Crowns	
"Mariatherma" Chemical and Medicinal Factory in Marienbad	Marienbad		1,600,000	Pharmaceuticals
Ludwig Marx, Lackfabrik A G	Milkendorf (Silesia)		2,300,000	Lacquers
Oderberger chemische Werke A G	Novy Bohumin (Silesia)		6,000,000	Saccharine monoply, pharmaceuticals, chemo-*metallurgical* products, etc (Raw materials from Aussiger Verein)
Bantlin Chemical Factories Co (Bantlin' sche chemische Fabriken A G)[4]	Perecin, Carpathian Ruthenia	Turja-Bystra, Perecin	10,000,000	Wood distillates, methanol, lime acetate, acetone, ketones, acetone oils, wood charcoal
First Moravian Agricultural Company for Production of Fertilizers and Chemical Products in Prerau (Erste Maehrische landwirtschaftliche A G zur Erzeugung von Kunstduenger und chemische Produkte in Prerau)	Prerau		3,200,000	Sulphuric acid, superphosphate, wood fertilizer, leather meal, fodder, vegetable oils, linseed oil varnish, etc
Carpathia chemische Industrie A G	Prievidza, Slovakia		500,000	Ethers, oils, essences, fruit juices, turpentine oil, wood tar, rosin, etc
Keramisch Chemische Werke A G, vorm Dr Allers & Heller in Prosetitz	Prosetitz		700,000	Colors and glazes for ceramic works
"Tefa" Teerfarben und Chemikalien Handels A G	Reichenberg		2,500,000	
Rosenberger Zuendholzfabrik A G	Ruzomberok		500,000	Matches
Szereder Kunstduenger u chemische Fabrik A G	Bratislava	Sered	4,000,000	Bone glue, spodium, fertilizers, bone meal, fat, phosphate, artificial rosin, in an I G with Dynamit Nobel
"Szolyva" Holzverkohlungs-A G	Prague	Svaljava, Carpathian Ruthenia	20,000,000	Wood, wood products, wood distillates
Boehmerwald-Holzimpraegnierungswerke A G	do		4,000,000	Wood preserving
A G fuer chemische Industrie in Tabor	Tabor		1,000,000	Leather waste products, shares owned by "Ossa" (above)
Chemosan-Helico A G	Troppau		3,000,000	Pharmaceuticals
"Clotilde" A G fuer chemische Industrie	Velcky-Bockov		5,000,000	*Wood distillates and compounds of acetic acid,* inorganic acids and salts thereof
Karlsbader Farbwerke A G (in liquidation)	Wickwitz near Carlsbad		4,000,000	Mineral print colors
Silleiner Kunstduenger und chemische Industrie A G	Zilina		4,000,000	Sulphuric acid and superphosphate
"Union" *Gesellschaft fuer Holzverarbeitung* und chemische Industrie A G	Zvolen		500,000	Wood distillation
Teerag A G fuer Teerverwertung	Prague	Budweis, Koeniggratz, Schlackenwerth	19,000,000	Tar products, roof board, asphalt, benzol, phenol, carbon black
"Saponia" United Bohemian Soap and Candle Factories Co	Prague-Nusle	Jaromer, Nusle, Lieben, Jungbunzlau, Oderberg, Neratowitz		Soap, candles, etc
Georg Schicht A G	Aussig	Aussig-Schreckenstein, Ringelshain	70,000,000	Soap, candles, perfumes (Elida), pioneer in hydrogenation of fats

"Bituma" Bergbau und Chemische Industrie A G	Karlsbad	Neukanitz b Petschau, Zweifelsreuth, Kralup	8, 000, 000	Mineral wax (Neukanitz) lignite (Zweifelsreuth) for tar, coke, and oils, sole representation of Riebeck Montanwerke, Halle, belonging to German dye trust, and of "Mawag" (Mineraloel & Asphaltwerke G m b H), Berlin
Montan und Industrialwerke vorm Joh Dav Starck	Unterreichenau b Falkenau	Unterreichenau, Kasnau, Bras b Pilsen	24, 000, 000	Sulphuric acid, aluminum sulphate, superphosphate, alum, ultramarine, sodium sulphide, chrome colors, etc

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[4] Bantlin Chemical Works Co belongs to the Holzverkohlungs-Industrie A G , Constance, but the majority of its shares is owned by the Zivnostenska Bank, of Prague

U. S. DEPARTMENT OF COMMERCE
R P LAMONT, Secretary
BUREAU OF FOREIGN AND DOMESTIC COMMERCE
WILLIAM L COOPER, Director

MARKETS FOR SAWMILL AND WOODWORKING MACHINERY IN CENTRAL AND EASTERN EUROPE

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FOREWORD

The sawmill and woodworking industries of the countries of central and eastern Europe are characterized, in the main, by large numbers of small establishments, most of which use very little, if any, machinery except of the simplest types Economic and financial conditions existing at present militate against any extensive installations of more modern and efficient equipment American machinery has been introduced in some of the countries and has established a reputation for speed, effective operation, and high production It is believed that more of it could be sold there if service could be assured and long-term credit arrangements made

The competition for sales of sawmill and woodworking machinery on the markets covered by this bulletin is, in general, very keen In Germany there are domestic manufacturers which not only supply most of the domestic market but export to all the other European countries as well Austria, too, has a well developed industry producing such equipment, and it supplies considerably more than half of the domestic demand Other European manufacturers, particularly Swedish, British, and Belgian, compete for the trade, they have an obvious advantage over American producers in their proximity to the markets

This bulletin describes the sawmill and woodworking industries of central and eastern Europe, showing the timber resources, the types and origin of the machinery in use, production and sales methods followed, and other factors bearing on the market for sawmill and woodworking machinery in that territory It is one of a series covering world markets now being made available to American producers by the Industrial Machinery Division of the Bureau of Foreign and Domestic Commerce That division will be glad to furnish more detailed information on specific request.

WILLIAM L COOPER, *Director,*
Bureau of Foreign and Domestic Commerce

AUGUST, 1930

MARKETS FOR SAWMILL AND WOODWORKING MACHINERY IN CENTRAL AND EASTERN EUROPE

GERMANY

By James E Willis, jr , American Trade Commissioner, Berlin

SAWMILL INDUSTRY

Germany has large areas devoted to the production of timber, and forestry has been intensively practiced for generations In the extent of its forests, Germany takes fourth place among the European countries According to the last official survey, for the year 1926–27, German forested areas amounted to approximately 13,000,000 hectares, or about 32,000,000 acres

By far the greater part of German forest land is covered by softwood trees, which comprise more than 75 per cent of the total The following figures show the amount of land devoted to the production of the various kinds of timber

	Million hectares
Pine and larch	6 46
Spruce	3 06
Fir	41
Oak	1 03
Beech	1 87
Birch and alder	39

Softwoods grow in all parts of Germany, the principal areas being the Province of Brandenburg, southern Bavaria, Baden, Wurttemberg, Lower Silesia, East Prussia, and Thuringia Pine and European larch are found chiefly in the northern and eastern sections of the country, with spruce and fir predominating in the south and west The largest areas devoted to deciduous woods are in Hessen-Nassau, Baden, the Rhine Provinces, and East Prussia

The carefully conserved forest areas of Germany produce a relatively large amount of useful timber According to official statistics covering the year 1926–27, total production amounted to about 42,000,000 cubic meters Of this, 25,000,000 cubic meters were lumber and 17,000,000 cubic meters fuel and waste wood Coniferous trees supplied 21,600,000 cubic meters, or about 80 per cent of the lumber produced Of this, 10,200,000 cubic meters were pine and larch, and 8,400,000 cubic meters spruce and fir Wood production from deciduous trees amounted to 3,400,000 cubic meters, of which 2,700,000 were hardwood

Despite every effort made in conservation, Germany is unable to supply the demands for lumber of a growing population of more than 60,000,000 people According to official figures, the total consumption of lumber in Germany now amounts to approximately 39,000,000 cubic meters annually As before stated, domestic production is about 25,000,000 cubic meters, it is necessary, therefore, to import roughly 14,000,000 cubic meters, or 36 per cent of the country's requirements The foreign woods used are largely softwoods, imports of which have increased considerably since the war Imports of beech have decreased by roughly one-third during the same period The most important countries supplying coniferous logs are Poland, Czechoslovakia, Austria, Finland, and Russia These woods are imported in large quantities in the form of squares for resawing from the United States, Rumania, Sweden, and the Baltic States Poland, Yugoslavia, and Czechoslovakia supply large quantities of oak and beech, while softwoods are imported principally from French West Africa and Poland Large quantities of cabinet woods, such as walnut and mahogany, are also imported in large quantities, especially for the veneer industry

Lumbering is not practiced on such a large scale as in the United States, and for this reason it is not necessary or practicable to employ mechanical methods to the same extent The mills are, in general, located near the scene of operations, and long hauls are the exception, log railways are not used to any extent Cableways are employed in certain sections of Bavaria and other mountainous districts

It is not the general practice to float logs on the German streams and rivers The location of the sawmills in the vicinity of lumbering operations makes this unnecessary in most cases Previous to the war large quantities of logs were floated from Poland to supply the mills in the Province of Brandenburg, but the development of the Polish sawmill industry has restricted these imports somewhat

Great care is used in the felling of trees so that there may be as little waste as possible Saws are very generally used In this connection it may be stated that the small chain-type saw operated by a gasoline engine is finding increased favor and that several German makes have been developed which are said to be well adapted to the work These are used not only for felling trees but also for the bucking-up of the tree into logs Electric-driven types have been developed for bolting or recutting logs at the mill

Tractors are used to some extent for hauling logs from the woods, but, in general, the logs are loaded on trucks and transported to the mill or railroad siding by horses or other draft animals

EXTENT OF INDUSTRY

Although logging and saw milling are not carried on in Germany as extensively as in the United States, they are both exceedingly important and well developed industries

During the 50 years prior to the outbreak of the World War, the number of sawmills in Germany increased slowly, and since that time has shown a slight decrease According to the latest official survey, for 1925, there were in Germany 15,619 sawmills, employing 134,191 persons This figure includes not only sawmills in the ordinary sense of the term, but also those combined with pulp mills and those used in connection with woodworking plants in general Of these, 9,251, or approximately 75 per cent, were small plants employing 10 persons or less The total number of employees in these small mills was only 26,658, or 19 1 per cent of the total for the industry A total of

2,630 medium-sized operations, having from 11 to 50 workers each gave employment to 60,786 persons, or 43 6 per cent of the total personnel The number of larger plants, employing over 50 persons each, was 534, with 52,074 employees, or 37 3 per cent of the workers in the industry From these figures it can be seen that at the present time by far the greater part of the German sawmill industry's production comes from the medium and larger sized plants

Sawmills may be found in almost every part of Germany, but the greatest centralization occurs in the more heavily forested areas, especially where water power is available, as in Bavaria, the Erzgebirge, the Riesengebirge, the Harz Mountains, sections of Thuringia and Baden, and in the more mountainous regions of the Rhineland The Province of Brandenburg is also an important sawmill district Some of the most important mills are located in Hamburg, Bremen, Luebeck, and other ports of entry for the sawing of timber imported in the form of logs, squares, cants, etc The sawmills of east Prussia are also of great importance

As has been previously stated, Germany is dependent on foreign countries for a large part of its wood requirements, and the production of its sawmills is practically all consumed at home Every effort is made to avoid long-distance shipments, and where possible, the output of the mills is sold locally

TYPE OF LUMBER PRODUCED

The output of German sawmills is, in general, very similar to that produced in the United States and is marketed as planks, beams, joists, scantlings, and other usual commercial forms In the case of softwoods, such as pine and spruce, planks and boards are sawn and edged As contrasted to this, it is a common practice to leave hardwoods unedged, in order to effect maximum utilization of the entire piece

EQUIPMENT

As might be expected in such a highly industrialized country as Germany, sawmill as well as other woodworking machinery has been highly developed and is extensively manufactured The mill equipment is predominantly of German origin, although a certain amount is imported from Scandinavian countries, especially Sweden Sawmill machinery from other countries is so little used that it may be considered negligible

The comparatively small size of German native timber, and the fact that the quality of the lumber can be judged from an inspection of the outside of the log, have contributed largely to the common adoption of the frame gang saw Local manufacturers have produced that type for many years and it is considered satisfactory as regards both design and performance

The band mill finds its greatest application in the sawing of hardwood and valuable imported woods, where economy and the selection of clear, high-quality lumber is a matter of prime importance The horizontal type of band mill is most common, although the vertical type is used to some extent, particularly in plants of small size In this connection it may be stated that certain German manufacturers build small vertical mills especially designed for the smaller woodworking plants Vertical gang saws are used to some extent It is understood that German band-mill manufacturers are encountering price competition from Belgian producers

The comparatively small size of the German forests does not, in general, favor the use of portable sawmills Some of them are manufactured, but it is understood that they are mostly for export Circular saws are used primarily for trimming and edging

The types of carriages used do not differ essentially from the standard American practice Those for band mills are usually an integral part of the machine and are controlled by rope feed Two to four carriages are ordinarily employed in connection with gang saws, depending on the size of the work They are of good design, very often equipped with antifriction bearings The main infeed carriages are equipped with devices for turning the log before it enters the gang and for releasing it before the timber is fully sawed In gang sawing the log is fed by fluted rollers, many of which are designed to adjust themselves automatically to the size of the logs This feature is found principally in the high-speed machines

The larger and more modern German sawmills are equipped with up-to-date equipment for the handling of logs and lumber, although not on the same scale as in the very large mills of the United States In the smaller plants hand labor is employed to a much greater degree, but even small operators are exerting every effort to cut labor costs by the installation of mechanical equipment wherever possible Practically every German sawmill of any size has a sorting pond, and log conveyors are invariably used

The limited timber resources of Germany and the necessity for the greatest economy in the production of lumber have led to the adoption of the most efficient equipment wherever possible The mill equipment is, in general, satisfactory, although there is a demand for improved methods and machinery provided it can be proved that they will effect economies, and if purchases can be financed In this connection it should be remembered that equipment is depreciated much more slowly than in the United States

Steam is the most important source of power in the German sawmill industry, although water power is used to a considerable extent, especially in the smaller plants According to the latest official survey, made in 1925, there were installed in German sawmills approximately 5,500 steam engines, mostly of the reciprocating type These machines had a total rated capacity of about 296,000 horsepower In addition, there were at that time roughly 8,400 water wheels and turbines with a total rating of about 100,000 horsepower and almost 1,100 internal-combustion engines having a total capacity of something over 23,000 horsepower This prime-mover capacity is utilized largely for the direct drive of sawmill machinery A considerable amount of electrical energy is generated or purchased, but to a much smaller degree than in other industries It is estimated that the German sawmill industry has an installed capacity of approximately 92,000 horsepower in electric motors

Mills using water power are found principally in Bavaria, Baden, Wuerttemberg, Saxony, and Thuringia Electric power is used on a large scale in parts of Bavaria, in Wuerttemberg, Baden, and Saxony, as well as in Hanover, Westphalia, and the Rhine Provinces

A large number of the steam plants burn wood, but in many cases it is found more economical to purchase coal.

SEASONING OF LUMBER

Owing to the comparatively high cost of wood and the necessity for the reduction of waste to a minimum, lumber is carefully seasoned in Germany, the amount and kind of seasoning depending upon its ultimate use or services required

Only the larger sawmills store and season lumber, most of it being sold green to dealers or to the large woodworking plants, where it is air or kiln dried according to requirements The kilns employed are modern and efficient, and every effort is made to introduce improvements American practice in this respect is very closely studied Rigid standards have been established in the seasoning of stock used in the fine-furniture and airplane industries

WOOD UTILIZATION

Wood utilization is of the utmost importance in Germany Every effort is made toward conservation, and the subject is scientifically studied

Intensive forestation and the necessity for clearing timberlands for replanting assure the utilization of all top logs and other wood Top logs as small as 4-inches top diameter are sawn, and those which can not be used in this manner are utilized in various other ways Slabs are used for cheap boxes, crates, laths, and box cleats Other waste wood is used for wood wool and composition board and is chemically treated to produce other by-products

There is a very strong demand for the reduction of waste through the use of thinner saw blades German saw manufacturers are said to be keenly aware of this situation, and there seems to be a growing tendency to produce saws which meet this demand

Market Possibilities for American Manufacturers

A survey of the German market for sawmill machinery indicates that the possibilities for the sale of American equipment are not great The chief demand is for frame gang saws, which are supplied mostly by domestic or Swedish manufacturers It is likely that some outlet may be found for band mills, but they would have to effect very marked savings to be purchased in competition with those of local manufacture The tendency in Germany is toward the increased use of labor-saving equipment, and for this reason a market might be found for superior log-handling and conveying machinery

[A list of German dealers in sawmill machinery is available in the Commercial Intelligence Division of the Bureau of Foreign and Domestic Commerce in Washington]

WOODWORKING INDUSTRY

Germany has a very highly developed woodworking industry, which employs modern machinery and methods wherever they can be introduced According to the latest available figures, there are in Germany at the present time approximately 175,000 woodworking plants in addition to sawmills By far the greater part of these are planing mills, sash and door factories, plants making indoor finish and trim, and furniture factories This group includes 102,477 plants, or roughly 58 per cent of the total Of these, 96,508, or approximately 95 per cent, are small plants employing from 1 to 10 persons, and many are only small carpenter shops

In addition to the above classification, there are three other principal divisions in the German woodworking industry, manufacture of wooden wares, packing cases, and wheels and vehicles These three groups include 72,000 plants, or something over 42 per cent of the total in the woodworking industry

The following table shows the number of German woodworking plants classified according to their size Figures covering horsepower are also included as a guide to the degree of mechanization

SIZE AND POWER EMPLOYED IN GERMAN WOODWORKING ESTABLISHMENTS

Employees per plant	Plants	Total horsepower used	Horsepower per plant
1 to 10	166, 655	337, 070	2 02
11 to 50	6, 979	144, 766	24 20
51 to 200	1, 180	96, 740	82 00
Over 200	128	39, 291	307 00
Total	174, 942	617, 867	3 53

From the above figures it may be readily seen that there are only 128 plants which are operated on what may be termed a fairly large scale

The following figures, covering the average amount of power utilized per worker, are presented as an aid in judging the degree of mechanization of the various chief divisions of the woodworking industry in Germany It should be noted that this ratio is much higher in the case of sawmills and veneer plants than in the other branches

	Horsepower per person
Sawmills and veneer plants	2 8
Construction lumber and furniture	8
Wooden wares	9
Packing cases, etc	6
Wheels and vehicles	1 0

As may be expected, power is more effectively utilized in the larger plants, and it is estimated that in these the average is 2 horsepower per man

The German woodworking industry is not conducted on the same large scale as in the United States There are practically no operations which compare in size with the large planing mills, sash and door mills, furniture factories, and general mill-work plants which exist in the United States As is shown by the foregoing figures, the very small plant is overwhelmingly in the majority The constant progress which is being made in rationalization and centralization of the German woodworking industry indicates a growing trend toward the larger plant as a means to more efficient and economical production

PLANT EQUIPMENT

By far the greater part of the machinery used in the German woodworking industry is of local manufacture, although a certain amount is imported, chiefly from Sweden, Norway, the United States, Switzerland, and Czechoslovakia Practically every type of woodworking machine is employed, although the demand for very efficient high-production machines, such as are used in the United States, is small.

It is understood that from the point of view of production German plant equipment is, in general, quite adequate for the industry's requirements A great deal of the equipment is, however, obsolete from the point of view of present standards This is due, not to any lack of appreciation of better and more efficient machinery on the part of the plant owners, but to a rather serious lack of capital Executives in the woodworking industry are keenly alive to the economies which might be effected through the use of up-to-date machinery and methods and would not hesitate to adopt them if they could afford to do so

As before stated, there are very few large woodworking plants Conditions in Germany do not generally permit mass production, with its attendant economies, as in the United States Such large operations as exist are efficiently conducted and use the most modern equipment wherever possible It is to this comparatively small group that the American manufacturer must look for his principal market

The fact that mass production is not widely practiced gives the industry a much lower output per worker than in America, where labor costs are very much higher The following figures show wages paid in the German woodworking industry The amounts given are for Berlin and may be taken as a maximum In certain other sections of the country, as in Bavaria, the figures are much lower

	Marks[1] per hour
Cabinetmaker	1 20
Machine operator	80
Finisher	1 00
Mechanic	1 50
Laborer	60

Electric power is available in practically every part of Germany, and for this reason it is possible to install machinery with individual electric drive in practically every plant The general tendency is to order this type of equipment whenever new machinery is purchased The economies of this form of power transmission are well known

Great attention is paid, especially in the larger sawmills and woodworking plants, to the conditioning of saws, machine knives, and other tools In the smaller plants this is very often done by the machine operator himself, but all the larger factories have special filing rooms with expert workmen Mechanical equipment is used for this purpose wherever practicable, and there are on the market several German makes of sharpening and filing machines, which make competition by foreign manufacturers rather difficult

KINDS OF LUMBER EMPLOYED

The German woodworking industry uses practically every kind of lumber, although softwoods are most largely employed Hardwoods are in great demand, especially by the furniture factories, and much rare wood, as veneer The lumber is, on the whole, well manufactured, and, as has been before stated, great care is given to proper seasoning

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[1] A mark equals approximately $0 24

PRODUCTION OF WOODWORKING MACHINERY

Germany has a highly developed woodworking machinery industry which is able to compete in most sections of the world There are at the present time about 150 factories devoted wholly or in part to the manufacture of woodworking machines With the exception of firms manufacturing sawmills and heavy planing mills, there is very little specialization, and most producers go in for the manufacture of various types of machines For this reason practically all plants compete with one another, and this competition is extremely intense German manufacturers produce almost every type of woodworking machinery Notable exceptions to this are the very high-capacity machines for mass production which are produced in the United States The opinion of experts in the industry seems to be that the designs of present German machines are somewhat inferior to those of American make, although it is understood that certain local manufacturers have recently brought out some ripsaws, planers, shapers, and tenoners that more nearly approach American standards.

IMPORTS OF WOODWORKING MACHINERY

Germany buys a considerable amount of foreign-made machinery, but this is very small as compared to the exports For the 5-year period 1925–1929 the number of woodworking machines exported was about thirty times as great as those brought into the country The following table is of interest as showing the trend in German imports of woodworking machinery since the end of the inflation period, as compared with the last pre-war year

Imports of Woodworking Machinery into Germany

Item	January–October, 1929	1928	1927	1926	1925	1913
Number	684	1,021	539	296	595	978
Weight in metric tons	493	839	597	251	539	771
Value, in thousands of marks	1,043	2,017	1,005	548	1,142	737

The general trend of imports of woodworking machinery from the principal countries of origin is indicated by the following figures

Origin of Woodworking Machinery Imported into Germany

[In metric tons]

Country of origin	January–October, 1929	1928	1927	1926	1925	1913
Norway	72	124	43	15	35	93
Switzerland	66	------	20	15	38	33
Sweden	57	205	104	58	136	123
United States	33	164	59	13	68	281
Czecholsovakia	42	28	------	------	------	------

Market Possibilities for American Manufacturers

Germany has a highly developed machinery industry, and for this reason American manufacturers of the more usual types of machines should not be overoptimistic as to the possibilities of selling their equipment in Germany There is, however, a market for those high-efficiency machines for mass production which are not produced in Germany

[A list of German dealers in woodworking machinery is available in the Commercial Intelligence Division of the Bureau of Foreign and Domestic Commerce, Washington]

CZECHOSLOVAKIA

By Dr Erwin Preuss, office of American commercial attaché, Prague

SAWMILL INDUSTRY

One-third of the total area of the Czechoslovak Republic, or 4,650,000 hectares, is covered by forests Seventy per cent of the area and 80 per cent of the output is softwood, principally spruce, pine, fir, and a small percentage of larch The Czechoslovak hardwoods are beech, oak, and some ash, aspen, elm, and nut wood

There are approximately 2,800 sawmills in Czechoslovakia which operate about 4,000 frame saws The majority of the mills are small, with only one frame saw in operation During the last few years a number of larger sawmills have been established in Slovakia and Subcarpathian Ruthenia, practically all of which are owned and operated by the Federal Government As a consequence of the land reform, the Federal Government is now by far the largest owner of forests in Czechoslovakia, owning 16 per cent of all the forests

Eight to ten million cubic meters of timber are consumed annually to produce 6,000,000 to 7,000,000 cubic meters of lumber It is estimated that about 40,000 people are employed in the Czechoslovak sawmill industry

The western part of Czechoslovakia—Bohemia, Moravia, and Silesia—is highly industrialized and affords good transportation facilities by railroad and the Elbe River and its tributaries The eastern half of the Republic—Slovakia and Subcarpathian Ruthenia—has few railroads and practically no rafting facilities at all Owing to the mountainous character of the whole country, the forests are not easily accessible

Modern conveying and felling systems are employed practically only by the Federal Government forest exploitations in Slovakia, while in Bohemia, Moravia, and Silesia practically all of the trees are felled with crosscut saws and axes The logs are skidded by horses, sometimes by trucks and tractors, to the sawmill, railroad station, or river In Bohemia about 500,000 cubic meters of logs are rafted annually Practically all of the logs destined for Germany are rafted down the Elbe River The exploitation of the Slovak and Subcarpathian forests goes back only about 10 years Except for the 41 big Government mills which have modern conveying facilities, such as log railways and aerial cableways, the sawmills still use horses for bringing the logs down to the mills or to the railroad station

The workers in the sawmills of Czechoslovakia are paid, on an average, 3 50 to 4 crowns ($0 105 to $0 12) per hour and work eight hours a day Most of the mills work single shifts

German machinery is predominant in the Czechoslovak sawmill industry and is estimated to account for 50 per cent of the total equipment Then follows domestic machinery, with 30 per cent, while the balance of 20 per cent is of Swedish, Austrian, and American origin While German sawmill machinery enjoys a good reputation in the local industry, local products have established a new standard of quality and efficiency and now enter into competition even in export markets, especially to Turkey The fact that comparatively little American sawmill equipment is in use is due, among other things, to the freight rates and to the question of service, and not to a lack of confidence in the quality and efficiency of the machines

The principal kinds of machinery used, in the order of their importance, are gang saws, circular saws, band saws, planers, jointers, cut-off saws, dovetailers, and the necessary saw-sharpening equipment

Ordinary platform carriages, without brakes or control devices, are in general use The feeding rollers form a unit with the gang saw

Except for the very small sawmills, the equipment used is more or less sufficient for the requirements, while the equipment of the larger mills, especially those operated by the Government, is up to date and efficient Much is still to be done in the medium-size sawmills, in the way of rationalization, organization, and introduction of time and labor saving equipment The owners of small sawmills either do not have the capital to adopt labor-saving methods or, as a principle, dislike any kind of innovation

While some mills have trolleys and automatic conveyors, in the majority of cases lumber and timber are handled by hand The loading facilities are very primitive, only the larger mills are equipped with loading platforms and only a very few have loading tracks Very few cranes are in operation, and practically all of them are in Slovakia

The thickness of the saw blades is determined primarily by the kind of timber to be worked, but much depends also on such local circumstances as the speed of the saw frame, available horsepower, degree of moisture in the timber, etc Thin saw blades are used in comparatively few mills Saw blades in use are principally of domestic make A fair percentage of the thinner blades is imported from Germany

All kinds of motive power are used in the Czechoslovak sawmills—water, steam, and electricity The smaller mills of which there are about 1,300 out of a total of 2,800 mills, are mostly water driven and thus have the cheapest power The majority of the mills, however, are steam driven and use principally their own waste as fuel Also, exclusive coal heating comes into consideration, and in many cases a combined coal and waste fuel system is used, according to the location of the mill

According to 1926 statistics, there were 992 sawmills in Czechoslovakia which used electric generators or electric motors There were 308 water turbines, with a total of 7,213 horsepower, 835 steam engines, with a total of 55,789 horsepower, 17 Diesel motors, with 267 horsepower, 3 gas motors, with 95 horsepower, and 765 electric motors, with 8,974 horsepower

Logs are sold by the cubic meter, partly as standing timber and partly as green stocks immediately after felling The lumber is generally dried in the open air in yards which are usually closely connected with the mills The larger mills with more modern equipment have kilns, practically all of which are of German origin The piano industry has up-to-date kilns The local airplane industry is still in an embryonic state

WOOD UTILIZATION

Practically all of the waste material is utilized in the Czechoslovak sawmills, unsalable waste is used as fuel for the boilers The recovery amounts to 65 to 70 per cent, according to the efficiency of the different saws and frames There is a general demand for more complete utilization of the timber, as the Czechoslovak costs of production, in spite of the cheap labor, are considered too high

[A list of Czechoslovak dealers in sawmill machinery may be obtained from the Commercial Intelligence Division of the Bureau of Foreign and Domestic Commerce in Washington]

WOODWORKING INDUSTRY

The annual growth of about 14,000,000 cubic meters of timber gives a basis for the comparatively extensive Czechoslovak woodworking industry According to the 1921 census, there were 370,783 people, or 2 72 per cent of the total population, earning their livelihood in that industry It is characterized by a great number of small plants and is composed of 31,987 independent enterprises While extensive forests are found mostly in the eastern part of the Republic, the woodworking industry centers largely in the western half

FURNITURE INDUSTRY

The furniture factories, and especially the bent-wood furniture plants, are the most highly developed and modernly equipped branches of the Czechoslovak woodworking industry

According to 1926 statistics, there were 346 large furniture factories in Czechoslovakia, employing 11,953 people, in addition to these, there were 2,181 cabinet shops employing 8,077 people, and 16 bent-wood furniture plants employing 6,565 people In 1928 the furniture factories were operated at full capacity The exports of bent-wood furniture increased from 9,506 metric tons, valued at 88,513,000 Czechoslovak crowns (1 crown equals about $0 0295) in 1927, to 10,656 metric tons, valued at 99,236,000 crowns in 1928 The corresponding export figures for other furniture were 431 tons, valued at 3,806,000 crowns in 1927, and 584 tons, valued at 6,000,000 crowns in 1928

PLYWOOD AND VENEER INDUSTRY

The Czechoslovak veneer and plywood industry is relatively small, but since it is only 10 years old, it is very modernly equipped

In 1926 9 plants, employing 701 people, were in operation As a consequence of the building boom, which is not expected to subside before the end of 1930, the Czechoslovak veneer and plywood factories not only operated at the full extent of their single-shift capacity but at times had to work double shifts in order to keep up with the demand Average import and export prices for a number of years indicate that the local industry is steadily increasing its production of the better grades of veneers, all of which were formerly imported

AVERAGE VALUE OF VENEERS IN CZECHOSLOVAK FOREIGN TRADE

[In Czechoslovak crowns [1] per 100 kilos]

Year	Imports	Exports	Year	Imports	Exports
1924	1,250	428	1927	947	698
1925	1,417	515	1928	847	742
1926	901	547			

[1] A crown equals about $0.03

Although the bulk of the Czechoslovak veneer production is absorbed by the domestic market, some quantities are exported. The foreign-trade figures for 1927 and 1928 are given in the following table.

CZECHOSLOVAK FOREIGN TRADE IN VENEERS

Year	Imports		Exports	
	Metric tons	Thousands of crowns[1]	Metric tons	Thousands of crowns [1]
1927	942.7	8,996	984.9	6,734
1928	2,291.0	19,400	1,034.2	7,672

[1] A crown equals about $0.03

OTHER BRANCHES

While the annual production of the Czechoslovak parquet industry averages 1,300,000 square meters during times of normal building activity, the 1928 building boom brought that figure up to about 2,000,000 square meters. The domestic demand is supplied almost exclusively by 21 mills with 2,335 workmen (1926 census), 1928 imports amounted to only 328 metric tons, while exports were 34 tons.

The annual capacity of the frame and molding industry amounts to about 4,000 metric tons, valued at 20,000,000 crowns. According to the 1926 census, there were 28 plants with 985 workmen and 13 smaller plants with 49 workmen engaged in the industry. During 1928 these plants operated at about 80 per cent of their capacity.

The 1927 and 1928 foreign trade figures of frames and moldings were as follows:

CZECHOSLOVAK FOREIGN TRADE IN FRAMES AND MOLDINGS

Year	Imports		Exports	
	Metric tons	Thousands of crowns [1]	Metric tons	Thousands of crowns [1]
1927	10.7	615	262.9	3,354
1928	39.6	777	262.0	3,137

[1] A crown equals about $0.03

In the barrel and box industry, 15 mills with 685 workmen (1926 census) and 64 smaller mills with 198 workmen supply the domestic demand. The foreign trade in wooden barrels and boxes is negligible.

With the division of the Austro-Hungarian monarchy, the cooperage industry lost a large part of its market, and a prolonged depression has prevailed in the industry since then This accounts for the rather obsolete equipment of the industry

In 1928, six wooden-heel factories, with an annual capacity of 15,000,000 pairs and employing 800 workmen, were operated at 80 per cent of their capacity

During 1928 about 30 excelsior factories, employing 900 workmen, were forced to operate at 80 per cent of their double-shift capacity to supply the local demand, which is estimated at 25,000 metric tons annually Imports of raw excelsior are negligible, exports decreased from 4,871 metric tons in 1927 to 4,401 metric tons in 1928

The annual capacity of the Czechoslovak piano industry is estimated at 10,000 units, 1,500 workmen were employed in 1928, and the output was 95 per cent of the total capacity

POWER EQUIPMENT

In the following table the power equipment of the different lines of the Czechoslovak woodworking industry is listed Only middle-size and larger mills are considered

MOTIVE POWER OF CZECHOSLOVAK WOODWORKING INDUSTRY

Item	Oak floors and parquets	Veneer and plywood	Barrels, boxes, and hoops	Frames and moldings	Wooden-shoe makers' supply	Other wooden ware	Furniture	Bent-wood furniture
Number of enterprises	21	9	15	28	20	152	346	16
Motive power								
Water turbines—								
Number	1	---	---	3	4	34	20	1
Horsepower	60	---		48	41	425	451	10
Steam engines—								
Number	24	13	7	11	13	57	91	17
Horsepower	3, 542	1 165	396	397	800	2, 717	4, 284	2, 774
Oil engines—								
Number	---	---	---	2	1	8	16	1
Horsepower	---	---	---	10	20	123	151	78
Gas engines—								
Number	---	---	---	---	1	1	2	---
Horsepower	---	---	---	---	8	30	18	---
Electric motors—								
Number	122	17	59	88	109	602	1, 215	96
Horsepower	1, 312	103	425	284	434	2, 467	5, 480	1 678
Horsepower used to drive machinery								
Water	48	---	---	48	23	396	179	10
Steam	2, 306	964	281	322	366	2, 014	3, 715	1, 470
Oil	---	---	---	10	20	123	143	50
Gas	---	---		---	8	30	18	---
Horsepower used to drive electric generators								
Water	12	---	---	---	18	29	272	---
Steam	1, 236	201	115	75	434	703	569	1, 304
Oil	---	---	---	---	---	---	8	28
Small enterprises not under review	---	---	64	13	16	1, 122	2, 181	---
Number of employees	---	---	198	49	47	3, 160	8, 077	---

It may be said that the Czechoslovak bent-wood furniture industry, the excelsior industry, and the wooden-heel industry are well and modernly equipped To a lesser degree this is also true of the piano, veneer, and airplane industries Many furniture factories, with the exception of the bent-wood factories, have still very inadequate equipment Only a very few have adequate kilns The most obsolete equipment is probably found in the cooperage industry A great deal is still to be done toward shifting from the predominant belt-drive to direct-drive power equipment

KINDS OF LUMBER USED

With the exception of wood used in the manufacture of bent-wood furniture, domestic softwood is used in the manufacture of about 80 per cent of the furniture production, for almost all of the excelsior production, for the manufacture of boxes, and, to a smaller degree, in practically all the other lines of the woodworking industry The supply of wood for the cooperage industry is below the requirements Poland and Rumania supply Czechoslovakia with quantities of this kind of wood The domestic production of alderwood is insufficient for the plywood and veneer industry, imports come largely from Poland

The domestic woods used by the Czechoslovak veneer industry are oak, beech, elm, ash, maple, lime, birch, poplar, willow, alder, walnut, cherry, and plum The foreign varieties used are, in the order of their importance, several sorts of mahogany, cedar, ocoume, gabon, rosewood, American and Caucasian walnut, Canadian and Finnish birch, tamo, sen (Japanese ash), and Brazilian pear

Generally speaking, the timber which is used in the local woodworking industry is well seasoned Only very few kilns are in operation, and much is still to be done in the way of adopting modern and efficient drying methods and equipment

COMMERCIAL DATA

Small plants predominate in practically all branches of the Czechoslovak woodworking industry, with the exception of the bent-wood furniture and the veneer and plywood branches A tendency toward larger plants and to greater specialization may be noticed in the parquet industry Of the furniture industry, only the office-furniture branch trends toward centralization An almost absolute absence of standardization, cheap labor, and the freight factor seem to indicate that the position of the small cabinet shop in the furniture industry will be secure for a long time

The wage scale ranges from 4 to 8 crowns per hour, with an average of 5 crowns paid to skilled workmen

It is believed that the local veneer and bent-wood furniture plants are the most efficient branches of the industry, but the excelsior plants are also well equipped Most of the other branches lack thoroughly modern organization and are in need of more efficient equipment

In many branches of the local woodworking industry a very unusual sales resistance is experienced in selling modern machinery The majority of the enterprises are very conservative or lack the necessary capital to invest in more efficient equipment In Czechoslovakia, bank money is too expensive to come into consideration for investment credits Furthermore, a great many of the plants are already much in debt Price is the dominating factor in the majority of cases Another adverse factor to sales of American equipment is the proximity of the German woodworking-machinery industry, which covers Czechoslovakia with well-trained salesmen. German machinery is well known, and replacement parts are readily available. The owners of larger and better-equipped plants have a better understanding of quality and efficiency, and there is no doubt that the market for American automatic and semiautomatic machine tools, special machinery, saw blades, etc., could be expanded, especially if a European stock is carried.

Below are given the 1927 and 1928 foreign trade figures for woodworking machinery and saws as far as they are specially provided for in the Czechoslovak statistics.

CZECHOSLOVAK FOREIGN TRADE IN WOODWORKING MACHINERY

Item	1927		1928	
	Metric tons	Thousands of crowns[1]	Metric tons	Thousands of crowns[1]
WOODWORKING MACHINERY				
Imports, total	453.3	7,021	635.2	9,495
Principally from—				
Germany	391.3	5,792	550.4	8,011
Austria	20.7	233	16.7	342
United States	11.2	412	2.0	87
France	8.6	116	9.4	184
Great Britain	8.5	240	1.1	58
Switzerland	7.9	153	5.7	199
Hungary	2.9	33	1.1	18
Sweden	1.4	32	10.5	238
Belgium	.2	4	38.3	358
Exports, total	380.7	4,289	559.5	5,810
Principally to—				
Austria	125.6	1,421	64.7	658
Poland	105.0	1,168	674.4	860
Yugoslavia	66.8	690	193.2	1,573
Rumania	39.4	428	182.2	1,922
Germany	21.6	357	10.8	162
Bulgaria	----------	----------	15.8	162
Hungary	----------	----------	13.0	173
Greece	----------	----------	3.0	131
FRETSAWS				
Imports, total	1.8	310	1.6	308
Principally from—				
Germany	1.7	304	1.6	303
Austria	.1	6	----------	----------
OTHER SAW BLADES				
Imports, total	233.4	5,923	269.0	7,210
Principally from—				
Germany	190.0	4,776	228.2	6,084
Austria	17.5	378	12.2	277
France	14.0	356	14.2	375
Sweden	6.1	218	5.5	165
Great Britain	2.8	104	4.7	162
Switzerland	1.9	45	2.4	62
United States	.9	33	.8	21
Exports, total	97.8	1,101	175.5	1,664
Principally to—				
Rumania	60.6	581	115.8	871
Poland	15.4	186	37.8	311
Austria	6.5	61	1.5	40
Germany	5.8	128	7.4	155
Hungary	4.5	38	2.3	29
Italy	1.9	11	.8	10
Yugoslavia	1.5	25	6.8	106
Russia	.4	21	----------	----------
United States	-----	----------	1.5	60

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[1] A crown equals about $0.03.

AUSTRIA

By John A. Embry, Acting American Commercial Attaché Vienna

SAWMILL INDUSTRY

In Austria there are 5,670 sawmills employing about 30,000 workmen There are 50,000 workmen engaged in felling the trees, while about 20,000 others are occupied in forwarding the wood to the mills Only about 1,200 of the Austrian sawmills are equipped with multiple-blade saws, deal frames, or gang saws Of about 1,000 other woodworking plants employing approximately 7,000 workmen, and about 2,000 furniture and cabinetmaking plants employing about 11,000 workmen, only 370 plants may be called factories

There are in Austria 3,137,000 hectares of forests The yearly growth of wood is estimated at 3 cubic meters per hectare, so the total yearly growth of wood amounts approximately to 9,411,000 cubic meters A cubic meter weighs from 4½ to 5 quintals, according to the kind of wood

It is estimated that the amount of wood felled in Austria annually is around 10,000,000 cubic meters Of this amount 4,000,000 cubic meters are used as fuel, 1,400,000 cubic meters for paper and cellulose, 300,000 cubic meters as mining lumber, 400,000 cubic meters as sleepers and telegraph poles, and 3,500,000 cubic meters for sawing and cutting

The principal kinds of wood available in Austria are softwoods, mainly spruce, fir, and pine Of these kinds there is a large surplus and considerable quantities are exported Larch, red beech, horn beam, oak, maple, lime, ash, walnut and "Ruste" are found in Austria in small quantities, but not in sufficient amount to cover domestic requirements

The felled wood is forwarded to the sawmills mostly as round timber, barked and not barked

The Austrian sawmills generally deliver direct to the consumers and the woodworking plants in Austria Italy is the largest foreign purchaser of lumber from the sawmills located in the southern part of Austria, while Germany is the principal foreign buyer from the northern mills Of the wood exported to Germany, about 30 per cent is delivered unsawn, which constitutes a considerable loss for the northern sawmills

The machines used in Austrian sawmills vary widely, and nearly all types are represented, from the oldest and most primitive machines, resembling the old Venetian gate, to the most modern equipment There are to be found in Austrian mills, gang saws, circular saws, rip saws, swing saws, band saws, trim saws, cut-off saws, and saw-sharpening machines About 70 per cent of these machines are of Austrian make, most of the remainder were imported from Germany Austrian imports of sawmill and woodworking machines for the years 1925–1928 and the first half of 1929 were as follows

IMPORTS OF SAWMILL AND WOODWORKING MACHINERY INTO AUSTRIA

Principal countries of origin	1925		1926		1927		1928		First half of 1929	
	Metric quintals	Thousands of schillings [1]	Metric quintals	Thousands of schillings [1]	Metric quintals	Thousands of schillings [1]	Metric quintals	Thousands of schillings [1]	Metric quintals	Thousands of schillings [1]
Total	5 674	1,243	4,461	957	5,943	1,330	7,956	1,762	3,536	853
Germany	4,933	1,098	4,003	878	4,599	980	7,192	1,575	2,676	615
Sweden	518	114	188	7	17	10	144	50	45	21
United States			36	18			19	9	82	51
Switzerland	2	1	33	16	38	25	60	28	29	19
Czechoslovakia	91	20	176	28	1,223	284	436	82	692	138

[1] An Austrian schilling is worth about $0 14

As Austria itself has a well-equipped machinery industry, Austrian exports of woodworking machinery to neighboring countries are of importance

Austrian imports and exports of sawmill and woodworking machines by quantity and value are given below

AUSTRIAN FOREIGN TRADE IN SAWMILL AND WOODWORKING MACHINERY

Year	Imports		Exports	
	Units	Thousands of schillings [1]	Units	Thousands of schillings [1]
1924	1,112	2,307	798	1,644
1925	615	1,243	646	843
1926	492	957	493	939
1927	597	1,530	406	824
1928	819	1,762	722	1,491
First half of 1929	340	853	184	702

[1] A schilling equals about $0 14

Most Austrian sawmills use trucks on narrow-gage rails propelled by man power More up-to-date plants with a capacity of 100 cubic meters per day have automatic conveyor facilities and loading devices, particularly winches, cranes, traveling carriages, chain-driven feed rollers, feed belts, and ejectors for logs, boards, scantlings, etc, also car-loading devices, hauling gears, and controlling devices

The modernization of Austrian sawmills has been going on for some years Nearly everywhere a demand exists for better machinery, especially for gang saws, conveyor facilities, and drying equipment However, only a small number of the sawmills in Austria are in a financial position to carry out any program of modernization, and these would have to be given long terms of credit by machinery manufacturers

There is some demand for thin saws, but the sawmills have had unfavorable experiences with kerfs thinner than 1 6 millimeters This detail is not important in Austria

The waste of hardwood in the sawmills amounts to about 50 per cent, of softwood with conic squaring 28 per cent and in the normal plants with parallel squaring (trimming), 40 per cent About one-third of this 40 per cent may be considered as waste and sawdust, which are used mostly as fuel for the steam boilers of the plants. Another third is used as firewood for locomotives or stoves or as material for briquettes. Other forms of wood waste cleaned from boats are used in the cellulose and paper industry. The remainder is used for laths, for parts of boxes and cases, and for small wood wares. Nearly all waste is put to some use.

In Austrian sawmills the following types of power equipment are used: Water wheels, turbines, and coal and wood fired steam plants, in some cases Diesel motors and recently some electric equipment, driven by overland power stations. Most of the sawmills are under roof. The lumber is sold for the most part as green lumber, or else it lies for two or three years at the sawmills or at the premises of the consumers for drying. Until a few years ago kiln drying was very seldom used, and it is only now undergoing trial.

The importance of using modern machinery to secure efficient production is very well appreciated in Austria. Much attention is given to this subject in meetings, lectures, trade publications, and booklets. The installation of up-to-date machinery is, however, greatly hampered by the lack of adequate capital.

The felling of trees is done mostly by hand labor. In recent years some felling saws driven by gasoline or electric motors have been used. The logs can be floated to the sawmills only in a few cases, but this is done wherever possible. Logs are also conveyed to the sawmills by overhead cable lines, by horses, by oxen, by trucks on narrow-gaged rails, and by tractors.

[A list of Austrian sawmill machinery dealers is available in the Commercial Intelligence Division of the Bureau of Foreign and Domestic Commerce, Washington.]

WOODWORKING INDUSTRY

In addition to a large number of small plants and shops, there are nearly 400 woodworking plants of medium size. These plants differ widely, although they are not so specialized as in the United States. For instance, planing mills and box factories are mostly connected with sawmills. Special sash and door mills do not exist, these articles being manufactured in carpentry works and in furniture-making plants. Match, piano, and car factories and cabinetmaking plants are of some importance.

Woodworking plants of medium size have mostly belt equipment with their own steam power. Electric equipment has been increasing in recent years. In Vienna many direct-current motors are still used, with 110, 220, and 440 voltage. The more up-to-date plants in Vienna and many plants in the Provinces having electric equipment use alternating-current motors with 220/230-volt, 50-cycle, 3-phase current.

Of the machines of these plants, 65 to 70 per cent were made in Austria. These machines vary widely in type and age. Many of them are obsolete (some 20 to 30 years old) and have depreciated badly. The owners appreciate very highly new and more productive equipment, but for financial reasons they are unable for the most part to bring their machinery up to date.

The principal kinds of lumber used in Austrian woodworking plants are spruce, fir, and pine, which are produced in Austria, larch, red beech, beech, hornbeam, oak, maple, lime, ash, walnut, and "ruste," which are partly produced in Austria and partly imported from neighboring countries, especially from Yugoslavia, Rumania, Poland, and Germany Softwoods are used for manufacturing boxes, matches, doors, windows, furniture, etc Hardwoods are used for inlaid floors, for manufacturing of hardwood furniture and pianos, and for many special purposes Veneer mills use also exotic woods The manner of working up the lumber shipped to the plants varies widely, but most of it is done in the plants themselves The lumber is purchased mostly green and is stored for two to three years in the plants for drying, if found necessary Sometimes the lumber is purchased after it has been dried in or near the sawmills As already mentioned, kiln drying is not very highly developed in Austria

The majority of Austrian woodworking plants are small carpenter shops, only a few plants are of medium size There is no tendency toward large plants, except in the match industry and the car-manufacturing industry

The minimum wages in the woodworking industry are in accordance with the collective bargaining regulations, which cover 80 to 85 per cent of all Austrian workmen, and are as follows

	Schillings per week
Highly qualified carpenter	71 60
Qualified cabinetmaker, piano maker, finisher, carpenter	59 04–62 40
Skilled assistant	
First year	19 20–43 20
Second year	45 60–49 14
Qualified woodworkers	45 12
Assistant woodworkers	
Skilled	42 12
Not skilled	39 84
Assistant woodworkers, female	
Skilled	36 96
Not skilled	30 72
Machine operators, mechanics	62 40

As already mentioned, price is the dominating factor in the purchase of woodworking machinery Although the local industry appreciates quality machinery, their lack of capital prevents them from purchasing the highest-grade machinery except in rare instances

Some of the medium-sized plants, especially those which are far away from industrial centers, have their own filing-room equipment The repair work for the other plants is done mostly in regular repair shops

The prospects for the sale of American woodworking machinery in Austria depend mainly on whether American manufacturers can compete with the prices of local and German manufacturers and whether they are willing to grant as liberal terms of payment as competitors, especially the Germans The latter often offer terms of 30 per cent of the invoice price payable on delivery, with the remainder payable in 24 to 36 monthly installments

HUNGARY

By Walter M Slavik, Assistant Trade Commissioner, Budapest

SAWMILL INDUSTRY

Hungary's sawmill industry is rather small At present the country's forests total 2,840,000 acres, composed of 1,528,000 acres of oak, 1,200,000 acres of beech and other hardwood, and 112,700 acres of pine

Output is chiefly of oak and beech products, they equal 54 and 42 per cent of the total production, respectively, compared with 4 per cent for pine Timber sawed lumber poles, ties, flooring, and firewood are produced

Hungary's industry has about 100 mills in operation, with 3,015 employees, and an annual turnover of $4,052,000 Small shipments are made to Germany Austria Czechoslovakia, and other neighboring countries

Most Hungarian mills use circular and gang saws, of Austrian make, although a few use band saws Germany is also a supplier

Hungarian mills are so small that they are content to use what little machinery they have, speed, accuracy, economy, and labor-saving devices, characteristics of a large, well-developed industry, are disregarded

Logs and lumber are handled in the mills by human labor almost entirely, conveyor facilities and loading devices are lacking and are far beyond the means of the mills

The kerf detail is ignored, but owing to their small output, consisting of a variety of products, most of the mills are able to utilize practically all of each log

Steam boilers using wood fuel are almost universally used by the mills Lumber is sawed in the open air kiln-drying equipment can not be afforded

Sawmill equipment is used to only a small extent by Hungarian mills, and they present no special potential market for such machinery, owing to their small operations and lack of capital

Hungarian mills are located in the Transdanubian region in western Hungary and in the Tisza River region in Transylvania The small mills of Transdanubia obtain their raw materials chiefly by railroad, none of them, however, are large enough to use log railways

Hungary's larger mills are along the Tisza River, whose eastern branches provide waterways from the forests of Transylvania Here the trees are felled, rolled to the streams, and floated to the mills Practically all work is done by hand, logging machinery is regarded as too expensive, the market for such machinery, therefore is unimportant

[A list of Hungarian sawmills is available in the Commercial Intelligence Division of the Bureau of Foreign and Domestic Commerce, Washington, D C]

WOODWORKING INDUSTRY

Hungary's woodworking industry, like the sawmill industry, consists chiefly of many units, small in size and capital, and limited in their equipment The industry specializes in those products in domestic demand, such as furniture and building materials Where electric current is available it is usually used, most of it is direct and single phase

Most plants have machinery imported from Germany and Austria, although some American machinery is found Most of the machinery is much depreciated, and only two factories in Hungary are equipped with up-to-date equipment The local woodworking-machinery industry is insignificant

Although the woodworking industry desires newer and more modern equipment, it can not afford the capital investment necessary This situation has been characteristic of the industry since the war, in the meantime, the equipment is wearing out and sooner or later will have to be replaced

The chief kinds of lumber used in Hungarian woodworking plants are pine, oak, and beech, the softer pine is used for cheaper household furniture and building finishes, while the harder is used for better furniture, flooring, etc Lumber is well seasoned before being used Sources of supply, besides the country itself, are Czechoslovakia, Yugoslavia, and Rumania

Hungary's industry consists of many small carpenter shops, with a few larger units These larger factories, owing to competition and the higher standards of quantity production and distribution seeping slowly into the country, show a very gradual tendency toward greater size and capacity

Average hourly wages in the Hungarian woodworking industry range as follows Cabinetmakers, 19 cents, mechanics, 18 cents, joiners, 17 cents, machine operators, 17 cents, finishers, 13 cents, laborers, 12 cents

Woodworking plants in Hungary are fairly efficient, considering their size, but they do not obtain high production, either for the plants as a whole or for the individual worker

The Hungarian industry uses a wide variety of machinery This machinery wastes considerable wood, but the wastage is considered less important than the money required for its elimination Although most Hungarian plants are powered with steam, using waste wood as fuel, large plants use electricity, with direct drive in most cases

Owing to the small size of the individual business and the lack of capital, price remains the dominant factor in woodworking-machinery purchases, even though the industry strongly appreciates modern equipment of quality

Germany is by far the chief supplier of Hungary's woodworking machinery needs, Austria is second, smaller quantities come from Czechoslovakia, Belgium, and France Imports are increasing slightly, but not enough for the needs of the industry, which, if able to obtain the money or the credit, would present a fair opportunity for American manufacturers, especially of servicing equipment, provided it is reasonably priced and within the means of the small plants The lack of money and credit, however, will be found severe deterrent factors in selling the Hungarian market

[A list of Hungarian woodworking establishments may be secured from the Commercial Intelligence Division of the Bureau of Foreign and Domestic Commerce]

POLAND

By Gilbert Redfern, Assistant Trade Commissioner, Warsaw

SAWMILL INDUSTRY

The forests of Poland, totaling 9,062,100 hectares, represent 24 per cent of the Republic's area Of the total wooded area, 2,861,032 hectares are State domains and are administered by the State, the balance being privately owned and exploited Poland cuts slightly less than 5 per cent of Europe's annual wood cut

Softwoods make up 75 per cent of Poland's forestry reserves, 60 per cent is pine, spruce accounts for 12 per cent, and fir for 3 per cent, 5 per cent of the total area is oak, the balance of 20 per cent being officially classified as "Other leafy varieties " These include alder, aspen, beech, birch, etc Poland's forests are scattered throughout the Republic, the percentage of forests to total area ranging from

19 in the central districts to 21 in the west, 25 in the south, and 27 in the east

Taking an average over the past four years, approximately 45 per cent of Poland's export of lumber goes out as logs, 50 per cent semimanufactured, and 5 per cent as finished products The tendency during recent years has been to show relatively greater increases in the export of logs than in planks and finished products The principal countries of destination, named in order of importance, are Germany, Great Britain, the Netherlands, Belgium, and France Germany takes about 80 per cent of the log exports and Great Britain about 50 per cent of the semifinished products During the years 1925 to 1928, shipments of lumber increased from 18 per cent to 25 per cent of the total of Poland's exports, notwithstanding the fact that lumber shipments to Germany, the principal market have been at times seriously interfered with in consequence of the so-called trade war

Stated in general terms, Polish lumber is cut and prepared with export markets as the main consideration The domestic market takes what can not be exported It is generally recognized that both the value and the volume of Poland's lumber exports could be considerably increased if better facilities existed for cutting, transporting, drying, and preparing lumber for foreign markets Lack of capital and abnormally high borrowing charges, however, are serious handicaps to the development and modernization of the lumber industry

Official figures show that there are in Poland 1,510 active sawmills operating a total of 3,353 mechanical saws The geographical location of the active sawmills is given as 412 in the central districts, 457 in the west, 448 in the south, and 193 in the east Working 260 days a year and 8 hours daily, the sawmills of Poland can work more than 12,000,000 cubic meters of logs annually The number of sawmills in Poland is relatively much greater than in the other important lumber-producing countries of Europe Polish sawmills, on the whole, are small enterprises, employing a large percentage of manual labor and frequently located in uneconomic relation to the source of raw-material supply

HANDLING LUMBER

Primitive methods, employing largely hand labor, are used in Poland for handling raw timber This applies equally to logging methods in the forests and to sawmill operations Transportation from the forests to adjacent mills is done mainly by team snaking or oxen, although some of the larger operators have narrow-gage railroads For long hauls, and particularly to mills in the neighborhood of Warsaw, logs are floated down the Vistula River The railroad is used for getting logs to mills not accessible to river transport Human labor and cables get the logs from river to shore, then teams haul them on a rough truck to the mills Windlass feeding is used in many of the sawmills

Logs for export can be floated to the Baltic seaboard Boards and finished products for oversea markets go by rail to the ports of Danzig or Gdynia, while mills close to the seaboard frequently ship green lumber to foreign markets

Logging methods in Poland are recognized as being very much behind the times, and it is thought that the lumber cut could be largely increased and grades could also be greatly improved by the adoption of more modern machinery and methods. Polish operators are aware of the situation, but lack of capital prevents them from adopting more efficient procedure.

SAWMILL MACHINERY

German machinery is most common in Polish sawmills, with gang saws predominating. Many mills saw in the open air. Two sets of four blades to the gang seem to be the most popular type. The saws range from 1,100 to 1,700 millimeters in length, 1,400 millimeters being probably the most popular size. Width varies from 160 to 175 millimeters, while the customary gage is 14.

As previously stated, Germany is the principal supplier of sawmill machinery to Poland, but Swedish and Belgian equipment has also been installed.

Among Warsaw mill owners Belgian machinery seems to be highly regarded, for circular as well as gang saws. So far as is known, there is as yet practically no American-made sawmill machinery in use in Poland, owing largely to price and credit difficulties and to a feeling on the part of the trade that it is not suited to existing operating methods in Polish sawmills. Credit is a prime factor in selling, and German and other European manufacturers are reported to be offering terms up to three years.

A Swedish concern is the principal supplier of saws to local mills, although a British make is also used fairly extensively. American saws are on sale, but comparatively little business is being done.

Imports of woodworking machinery into Poland for the years 1924–1928 are given below.

IMPORTS OF SAWMILL AND WOODWORKING MACHINERY INTO POLAND

Year	Total		From Germany	
	Tons	Thousands of zlotys[1]	Tons	Thousands of zlotys[1]
1924	705	1,845	472	1,214
1925	578	1,785	414	1,336
1926	371	1,210	225	758
1927	1,060	3,479	667	2,176
1928	1,398	4,482	996	3,061

[1] A zloty equals $0.1125.

The preliminary official figures for the first five months of 1929 show imports of sawmill and woodworking machinery, including saws, to have been as follows:

IMPORTS OF SAWMILL AND WOODWORKING MACHINERY INTO POLAND, FIRST FIVE MONTHS OF 1929

Country of origin	Metric tons	Thousands of zlotys[1]
Austria	28.8	124
Belgium	46.1	162
Czechoslovakia	32.2	90
Germany	243.3	987
All other countries	123.6	627
Total	474	1,990

[1] A zloty equals $0.1125.

In Warsaw, mill owners and dealers seem to feel that present equipment is satisfactory It is claimed that sawing is quite accurate in Poland and that there is a good degree of recovery Polish mills generally use a 2-millimeter saw, with consequent reduction in kerf It is admitted that American machines saw much faster than the machines generally found in Poland and that American equipment is labor saving Manual labor, however, is abundant and cheap in Poland, and present equipment seems to saw fast enough to suit local requirements

It is claimed that some Polish sawmills get a recovery as high as 80 per cent on good grades of raw material The average, however, is probably not much over 60 per cent, since official statistics give an annual capacity output of 7,200,000 cubic meters of sawn lumber from 12,000,000 cubic meters of logs Authorities state that waste in Poland is less than in some other countries, partly because speed is not an all-important factor There is no great amount of waste in the form of slabs, top logs, etc

If the feeling that American machinery will not give greater wood utilization and more accurate sawing than that now in use can be removed and if price and credit difficulties can be overcome, there are, no doubt, sawmill owners in Poland who could be persuaded to consider the installation of American equipment However, financial conditions throughout Poland at the present time are not conducive to new investments in the lumber industry Drastic retrenchment is the prevailing mood in all matters of capital investment

The type of kiln mostly used in Poland is heated by waste steam from the boilers These kilns are largely equipped with German machinery The lumber has to be taken out of the kiln and weighed in order to ascertain the degree of dryness which has been attained

It ought to be possible to sell American-made drying equipment to Polish mills The cost of such machinery could be recovered in short order by the much better export prices that would be obtained, and by the ability to furnish domestic manufacturers of airplanes, pianos, radio apparatus, etc , with a much better product than is now turned out by Polish mills

Steam boilers, of the railway-locomotive type, provide the main source of power in Polish sawmills Plants located in the big cities occasionally use municipal electric current in conjunction with steam, and a very few of the largest plants have their own power stations Gasoline engines are also occasionally used The steam boilers use waste wood, sawdust, and slabs as fuel

Polish machinery dealers can not usually finance imports They must sell to the mills on at least one year's credit, and, with local borrowing charges (in the exceptional cases when Polish banks can be persuaded to discount long-term industrial paper) being very costly, the dealers look to the foreign manufacturer to finance business Unless, therefore, American makers of sawmill equipment and woodworking machinery interested in doing business in Poland are prepared either to carry customers' notes or to make arrangements for their discounting elsewhere than in Poland, it will be very difficult to promote sales.

[A list of the leading dealers in Warsaw competent to handle, and service imports of sawmill machinery, and also of the principal Polish sawmills, is available in the Commercial Intelligence Division of the Bureau of Foreign and Domestic Commerce]

WOODWORKING INDUSTRY

Woodworking establishments of all types abound throughout Poland There are probably several thousand plants, employing less than a score of workers each, engaged in the manufacture of furniture boxes, doors, and sash, etc , using generally artisan tools If they use machinery, at all, it is of a type that is now practically obsolete in the United States

Apart from these unorganized and more or less haphazard establishments, among which will be found at present practically no potential buyers, it is stated that there are not more than 30 to 40 woodworking establishments in all Poland that are worthy of serious consideration as prospective buyers of American machinery at the present time

Apart from the multitude of small carpenters' shops, door and sash mills, box factories, etc , already referred to, the larger mills, numbering about 35, which employ woodworking machinery on a fairly extensive scale, are engaged in the manufacture of furniture, about 20 plants, in the veneer and plywood industry, about 6 or 8 plants, in the manufacture of street cars and railway coaches, 3 large establishments, in airplane manufacture, 2 plants, and in making automobile bodies, 2 or 3 plants A few of the large mills, of course, manufacture doors, window frames, etc , for the building trade, but most of this work is done in the smaller plants Bent-wood furniture is also an important industry in Poland, but these plants employ a preponderance of hand labor, and such machinery as they use is generally of a special type imported from Germany

The avowed policy of the Polish Government in recent years has been to aid and promote industries employing round wood as their basic raw material With raw timber counting so heavily among Polish exports, the Government has endeavored, in the first place, to develop the sawmill industry in order to curtail the export of unworked timber, and to increase as much as possible the export of sawn lumber and finished products within the limitations imposed by the dearth of capital for investment

Poland's annual production of furniture is currently estimated at about 50,000,000 zlotys ($5,630,000) About one-third of this is bent-wood furniture, with the greater part being produced for export There are at present in Poland 21 bent-wood furniture factories employing 5,380 workers

Exports of furniture from Poland have been as follows

POLISH EXPORTS OF FURNITURE

Classification	1926		1927	
	Metric quintals	Zlotys [1]	Metric quintals	Zlotys [1]
Unpolished, unvarnished	1, 281	131, 000	2, 680	334, 000
Polished, varnished	3, 105	604, 000	1, 807	340, 000
High class, carved (including upholstered)	11	5, 000	676	64, 000
Garden furniture (willow)	2, 129	372, 000	1 064	192, 000
Bent wood	55, 645	11, 381, 000	50, 601	9, 744, 000

[1] A zloty equals about $0 1125

While it is claimed that Polish forests adjacent to the Carpathian Mountains are capable of providing beech and other hardwoods to meet the entire needs of Polish mills, Poland nevertheless imports a large amount of beech bent-wood for the manufacture of furniture Beech was imported from Czechoslovakia in 1926 to a value of 750,000 zlotys, and in 1927 to a value of 832,000 zlotys The main reason for the import of beech, however, is inefficient exploitation of Polish forests and lack of narrow-gage railways so that, as the industry is at present organized, the raw materials can not be brought to the mills economically The economic maladjustments resulting from the World War and the reconstitution of Poland are also largely responsible for the fact that Polish woodworking mills for the most part are disadvantageously situated in relation to existing sources of raw material supply Radom and Piotrkow, for example, are the most important districts in Poland for the manufacture of furniture These districts produced mainly for the Russian market before the war and relied upon foreign (Austrian) sources of raw material While Poland now has adequate beech within her own frontiers, the forests are situated so far from Radom and Piotrkow as to make it more economical for mills in those districts to import from Czechoslovakia

A comparatively recent industry in Poland, and one that has made considerable progress during the last few years, is the manufacture of plywood There are now in operation 16 veneer and plywood mills, only about half of which, however, are of major importance These mills are grouped in a syndicate known as the Union of Manufacturers of Veneer and Plywood This union employs a total of about 3,000 workers and utilized, during 1928, approximately 150,000 cubic meters of alder, of which some 100,000 cubic meters were prepared for export The development of this particular branch of the timber industry is shown by the exports of plywood, which increased from 70,771 cubic meters in 1924 to 97,896 in 1925, to 169,669 in 1926, and to 201,144 cubic meters in 1927 It is claimed that Poland possesses the richest supply of alder in Europe, outside of Russia, so that the continued development of this industry seems to be assured, especially as other hardwoods used by the plywood industry are also available in abundance

It is thought, however, that Poland's exports of plywood would command a much better market and higher prices abroad, particularly in Great Britain, if better facilities existed for the drying and preparation of the raw materials Authorities claim that Polish plywood commands only about one-half the price it would if it could be shipped to meet the exacting specifications of the principal foreign markets

The greater part of the machinery now employed in the larger Polish woodworking establishments is of German or Austrian make, the latter including a cheap type that is used mostly for window frames and doors An important Leipzig concern supplies most of the machinery for furniture making, and both Germans and Austrians are active in the veneer and plywood field

During the past year or two sales of American woodworking machinery have been made in Poland These have special significance, considering the fact that American woodworking machinery was practically unknown in the country until recent years Veneer lathes for the plywood industry are a leading American line now used in Poland The ability to show this machinery to other prospective buyers should be an important factor in the development of the Polish market for American woodworking machinery in general since local mills are extremely reluctant to buy from catalogues and sales literature

The American machinery already in operation in Poland, according to dealers, has clearly demonstrated its superiority There are, however, compelling reasons for the greater part of Polish mills to maintain their Austrian and German connections Notwithstanding existing political and economic differences, there have been long-established connections between the Polish mill owner and the German machinery manufacturer They are next-door neighbors, machinery is well serviced, spare parts are quickly available German machinery is now being sold in Poland on as much as three years' credit, usually, against acceptances, with the German manufacturer generally not, insisting on a bank guaranty or even on the indorsement of the dealer German prices, moreover, are said to be appreciably lower than American A German planer, with motor, is quoted at 7,000 marks (approximately $1,750) f o b frontier station A German shaper is quoted at 2,000 marks (about $500) It is felt, however, that the high quality and efficiency of American machinery justify the higher price, but sales must be made on quality, rather than a price and credit basis

The wages paid to skilled labor, which includes machine operators, finishers, and mechanics, in Polish woodworking mills range from 8 to 10 zlotys per day Common labor is paid between 4 and 6 zlotys, as a rule Wages, of course, are higher in and around Warsaw and other large cities than in the smaller communities

Steam power (from waste wood) and belt equipment are used almost exclusively in Polish mills A few plants in cities like Warsaw use also electric current furnished by the municipality

Polish mills, with rare exceptions, do not obtain high production per worker, nor would they be considered at all efficient as judged by American standards There are far too many small carpenters' shops using hand tools and machinery of the most primitive types The mill owners believe that if they installed fast and modern machinery, their plants would be able to operate only for an hour or two daily Such plants, moreover, would have to be completely rebuilt to accommodate direct-drive electric machinery There are probably not more than a dozen plants in Poland at present that could use direct-drive machinery, and most of these plants are already trying out American equipment, or are willing to do so if the difficulty of financing the purchase of such machinery can be satisfactorily overcome

It is not ignorance of the high degree of efficiency of American woodworking equipment that is holding back the further development of the market, nor is it wholly due to the relatively high initial cost compared with Austrian and German machinery The major difficulty is to arrange for the financing of business on a large scale The Polish manufacturer who buys sawmill or woodworking machinery does not expect to pay for it in less than two years Dealers themselves are usually unable to carry this paper, and, in the exceptional cases when it can be discounted in Poland, local banks charge relatively high rates Their charges for guaranteeing such paper are also very high Usually, therefore, the manufacturer himself must carry the paper or else find some way to discount it

[A list of Polish woodworking plants and dealers in woodworking machinery may be secured from the Commercial Intelligence Division of the Bureau of Foreign and Domestic Commerce, Washington]

RUMANIA

By Sproull Fouche, American Commercial Attaché, Bucharest

SAWMILL INDUSTRY

Prior to the war and the annexation of the Provinces of Transylvania, Bucovina, and Bessarabia, there were only 120 sawmills with a total of 400 saws in Rumania. The annexation of the above territory more than doubled the lumber industry of the country. The present situation of the sawmill industry is indicated by the following table, supplied by the Ministry of Industry and Commerce.

SIZE OF RUMANIAN SAWMILL INDUSTRY

Province	Mills	Capital, in gold lei[1]	Saws	Employees	Horse power
Old Kingdom	149	25,300,000	797	19,633	22,559
Transylvania	232	27,400,000	686	16,433	28,879
Bucovina	102	900,000	305	8,400	7,948
Bessarabia	15	7,500,000	37	817	461
Total	498	61,100,000	1,825	60,653	44,475

[1] A gold leu is worth $0.192.

Together with cereals and petroleum, lumber is one of the country's three main resources. The average annual production is 8,000,000 tons, of which 5,000,000 tons are consumed for fuel, the great majority of buildings in the country being heated with wood. The annual production of softwood, principally sapin, is 2,500,000 tons, and that of hardwood (oak and beach) is 500,000 tons.

Approximately 50 per cent of softwood produced in the country is exported in the form of planks, framing, and sleepers. The exportation of oak logs is prohibited, and that of softwood logs is very small. Exports are mainly through the port of Galatz to central European countries and to the Near East. During 1928, Rumania exported 648,227 tons of firewood, 103,507 tons of hardwood construction lumber, and 1,033,789 tons of resinous or softwood.

The machinery used in the sawmills of the country is mainly of German manufacture, a result of the fact that the lumber industry has always been largely controlled by German capital.

The equipment is largely of the gang-saw type with automatic, rapid-feeding carriages. The present equipment is generally considered satisfactory and sufficiently up to date by the industry. The capacity of the mills is 75 per cent greater than the average output. The cost of labor is so low that no necessity is felt, or likely to be felt in the near future, for labor-saving devices. Logs, as well as lumber at the mills, are practically all handled by hand labor.

Owing to the abundance of raw material, the question of kerf and waste is generally considered of negligible importance, especially as all of the sawdust, slabs, top logs, etc., are used as fuel by the mills, by the mill laborers, and by the population of sawmill districts. There is, consequently, practically no agitation of the question of recovery and more complete utilization.

Steam engines, using wood and sawdust as fuel, form the main type of power equipment employed by Rumanian sawmills.

The mills of the country are usually located near the forest and on streams which can be utilized for floating logs The great majority of the forests are upon precipitous mountain lands, rendering the use of motor-driven saws for felling impractical After the trees are felled, which is usually done with axes, the logs are snaked down the steep slopes to positions in the valleys where they are accessible to ox teams and are then carried by means of sleds or by dragging to the mills or streams Practically all movement of logs is carried out during the winter when there is sufficient snow to permit of the use of sleds After the logs arrive at the streams they are floated, either singly or in rafts, to the mills In some instances the water journeys are long, extending from the far interior to Galatz on the Danube River

For most operations, practically all logs are handled by hand labor in a most primitive way, but they are usually drawn from the water to the mills by means of cables and drums A few of the mills are connected with the forests by narrow-gage railways operating wood-burning steam engines However, the very great majority of the logs are transported by water

Lumber is exported both by the producers and by exporters who purchase from the mills Lumber for export is not kiln dried, but is usually stacked at the mills and air dried for 6 to 12 months before exporting A small amount of lumber is kiln dried for local consumption by woodworking plants and for the manufacture of parquet flooring, the consumption of which is very large The kilns in use are generally merely chambers heated by means of steam pipes

Owing to the fact that there are no piano factories and only one comparatively small airplane factory in the country, only a small quantity of high-grade lumber suitable for such industries is produced However, a small amount of wood suitable for the manufacture of violins and other musical instruments is produced and exported

WOODWORKING INDUSTRY

The following table, compiled from the latest available data (1927) of the Ministry of Industry and Commerce, shows the general situation of the Rumanian woodworking industries

Size of Rumanian Woodworking Industry

Type	Capital, in gold leu [1]	Machinery units	Horse power	Employees
Boxes and barrels	2,012 084	229	1,424	734
Lasts and pegs	1,481 487	208	708	536
Brushes	1,247,255	259	314	740
Furniture	8 244,918	1,212	4,194	5,307
School and office supplies	90,000	47	99	153
General carpentry	4,180,536	865	2,579	2,016
Household goods	968,227	335	541	680
Total	18,224,507	3,155	9,859	10,166

[1] A gold leu is worth $0 193

The power used by the leading Rumanian woodworking plants is electric current of 120 volts and 3 phases Belt equipment is rapidly being replaced by modern machinery with direct electric drive

Most of the machinery is German Owing to the fact that most of the woodworking plants were reorganized after the war in order to meet the increasing demand of the expanding construction industry of

Rumania, their machinery is of comparatively recent manufacture, having suffered only to a relatively negligible extent from depreciation and obsolescence However, the construction campaign having slackened, the woodworking industry has been adversely affected, and most plants are not prepared to consider much new equipment

The furniture plants are mainly employing local oak and beech wood for the manufacture of their products, while the sash, door, and indoor-finish mills are using local sapin and oak The quality of the work is, in general, mediocre, because the wood is usually not well seasoned and dried However, the appearance of the product is considered the principal thing in Rumania, and special pains are taken to manufacture objects of attractive and modern designs In addition to the larger plants there is a great number of small workshops in both cities and villages where practically all of the work is performed by hand The proportion of furniture made by these shops is large The main difficulty in Rumania seems to be inadequate kiln-drying facilities

Owing to the lack of capital and cheapness of manual labor, the present tendency in Rumania is toward small carpenter shops The average wages in the woodworking industries are 40 paper leu per hour for cabinetmakers, 30 leu per hour for machine operators, 40 leu per hour for finishers, 30 leu per hour for mechanics, and 10 leu per hour for laborers (A paper leu is worth $0 006) From the general Rumanian point of view, the woodworking plants are considered efficient, although high production is not obtained The management of the larger concerns have a good understanding of the benefits to be derived from more systematic production and adequate use of modern machinery, but the scarcity of money and credit and high interest rates are preventing development along these lines Electric drive is becoming universal, even with the German machinery used

Price and long credit terms are the dominating factors in the purchase of machinery in Rumania While the superior quality of American products is fully understood, European manufacturers, especially those of Germany, understand thoroughly the attitude of the people and the conditions prevailing, and they are benerally prepared to sell cheaper and to grant more favorable terms (12 to 18 months) than American manufacturers In addition, traveling representatives of European houses often visit the country and are in close touch with the trade Notwithstanding this condition, if the question of terms could be met, American woodworking machinery could be sold in Rumania even at higher prices than those quoted by European producers

Statistics covering imports of woodworking machinery are not available, but it is certain that Germany dominates the market, the competition offered so far by American and British concerns being negligible In view of the fact that most of the dealers in woodworking machinery have qualified engineers who regularly visit the plants giving advice and suggestions, the factories are usually adequately equipped with servicing material and filing room tools

Practically no dressed lumber is exported, woodworking plants dispose of their output on the domestic market.

[A list of Rumanian dealers in sawmill and woodworking machinery is available in the Commercial Intelligence Division of the Bureau of Foreign and Domestic Commerce, Washington, D C]

U. S. DEPARTMENT OF COMMERCE
R P LAMONT, Secretary
BUREAU OF FOREIGN AND DOMESTIC COMMERCE
WILLIAM L COOPER, Director

LATIN AMERICAN MARKETS FOR DAIRY EQUIPMENT AND SUPPLIES

Trade Information Bulletin No 710

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FOREWORD

In making a survey of the field for dairy equipment and supplies in Latin America, one must bear in mind the potential as well as the actual market demand Insistence upon strict sanitary conditions in the dairy industry through Government regulation and the adoption of modern methods in the production of butter, cheese, powdered milk, and other dairy products is a matter of slow development In very few instances has this movement in Latin American countries approached the advanced stage long ago reached in the United States The slowness of this development accounts for the fact that United States exports of dairy equipment to the countries south of us are not yet large as compared with our other machinery trade Most of this trade is with such countries as Cuba and Argentina, where sanitary regulations and improved dairy practice are opening up a field for this class of equipment Such agencies as the motion picture and tourist demand are gradually modernizing these markets, as evidenced by the recent erection of the first ice-cream plant in Venezuela

The following survey indicates the actual as well as the potential field for dairy equipment and supplies in the various markets of Latin America. The Industrial Machinery Division of the Bureau of Foreign and Domestic Commerce offers its cooperation in assisting American manufacturers of dairy equipment and supplies to market their products in Latin American or other foreign markets

William L Cooper, *Director*,
Bureau of Foreign and Domestic Commerce.

August, 1930.

LATIN AMERICAN MARKETS FOR DAIRY EQUIPMENT AND SUPPLIES

INTRODUCTION

United States exports of dairy equipment and supplies to Latin America are comparatively small, amounting to only $286,000 in 1929. While not large for so extensive a territory, it should be borne in mind that most of this trade is with a few countries where sanitary regulations and improved dairy practice have opened up a field for modern dairy equipment.

Value of United States Exports of Dairy Machinery

Country	Cream separators		Total, including other dairy machinery	
	1928	1929	1928	1929
Canada	$575,486	$438,218	$1,606,472	$1,584,396
Australia	116,997	133,884	168,137	177,026
Cuba	4,134	8,517	49,058	160,282
United Kingdom	20,204	433	98,414	110,000
New Zealand	9,558	73,207	25,175	103,265
Union of South Africa	16,184	12,922	30,380	52,876
Mexico	2,503	2,034	29,999	35,070
Argentina	28,965	4,483	63,706	26,966
France	----------	2,079	9,719	36,279
Total (including other countries)	797,460	700,453	2,301,887	2,469,247

Latin American dairy methods and equipment are in general far behind those of the United States, a fact which seriously limits the present market for supplies for this industry. In many instances the consumer still receives his milk supply in open receptacles, and only a small proportion is bottled, except in a few large cities. Especially noticeable is the failure to utilize efficently surplus and waste milk in the manufacture of marketable products. Ice cream is not yet manufactured on a commercial basis, although the demand for this commodity is increasing. Despite such limiting factors the dairy industry of Latin American countries is gradually becoming modernized, and a correct estimate of the value of these markets, potential as well as actual, such as the following survey aims to give, should prove helpful to the American exporter.

ARGENTINA

Alexander V. Dye, American Commercial Attache, Buenos Aires

The dairy industry of Argentina is of comparatively recent development, although the country has been known as a cattle country for the past century. Most of the large " estancias " or ranches were originally devoted to herding cattle which pastured on native grass.

Later came the planting of alfalfa, then other cereal crops, and the dairy industry was started with the introduction of blooded cattle The dairy industry is still, however, in the early stages of its development. This can probably be best illustrated by the fact that only since the war has Argentina come prominently into the world markets as an exporter of dairy products

LOCAL DAIRY INDUSTRY

There are no statistics or even estimates as to the total production of milk in Argentina The dairymen's association estimates the annual production of butter at 40,000 metric tons and states that the butterfat content ranges from 2 8 to 4 per cent On that rather slim basis for calculation one might guess that the production of milk is about 1,140.000 metric tons per annum

There are about 50 establishments whose annual production of butter will each amount to half a million pounds or more

There are in the Argentine Republic approximately 12,000 large "estancias," some of which include 300 to 400 square miles of territory and employ at times several thousand men, having small villages located on different parts of the "estancia" Others are smaller, employing only 25 to 30 men There are upward of 50 which have in operation dairy plants Some of these plants make butter only, but most of them make butter and casein, and many produce cheese

The usual method is to keep the milk cows in herds of 120 to 160 each, grazing them on alfalfa in inclosed pastures of 300 to 500 hectares (The hectare is 2 47 acres) Each herd is accredited to a keeper who turns in a daily production of milk at the estancia creamery on a share basis His financial interest, therefore, is to produce as high a percentage of butter as possible The cows are milked once a day, and the average daily production of milk ranges from 3 to 4 liters (1 liter, liquid, equals 0 264 United States gallon) in the winter and 12 to 15 liters in the summer The butterfat content in the milk ranges from 2 8 to 4 per cent and is paid for by the central creameries on the basis of butterfat, the price ranging from 1 3 to 1 9 Argentine pesos per kilo, depending on the price of butter in the London market. (One peso equals 42½ cents United States currency.)

Each estancia has a dairy plant. These plants vary considerably in size and equipment, depending on the size of the estancia, but usually consist of a small oil engine, which may be anywhere from 10 up to 100 horsepower The usual dairy machinery consists of warmers, cream separators, storage tanks, can-washing machines, casein hydraulic presses, and casein pulverizers There is usually a shed for storing dried casein through the night, as nearly all casein is dried in the open air.

Generally speaking, the buttermilk and skimmed milk are used only for the manufacture of casein and for the feeding of pigs, consequently no very definite values are attached to the skimmed milk or the buttermilk. A very few of the factories use electric power from local electric-light plants, and a few have their own power plant generating electricity for the use of the estancia In such cases the price of electricity is ordinarily from 8 to 15 centavos per kilowatt-hour (about 3 5 to 6 5 cents United States currency) The cost of fuel oil is usually from 32 to 34 pesos a ton.

Milk is practically never used for feeding chickens or poultry There is practically no production of evaporated, condensed, or powdered milk in the Argentine Republic A small quantity of condensed and malted milk is imported

The milking is usually done in a large corral, and the milk is poured into tin milk cans having a capacity of about 10 gallons each These cans are then placed in large 2-wheeled carts and hauled to the dairy plant The sanitary supervision depends upon the proprietor of the estancia, but is usually very good

CITY DISTRIBUTION OF DAIRY PRODUCTS

Dairies which supply milk to the city of Buenos Aires come under the supervision of the Department of Agriculture, and some of the milk is bottled In Buenos Aires all systems and degrees of excellency (or lack of it) exist side by side Through the residence parts of the city the milkman still drives his cows through the streets, followed by one or two muzzled calves, and carries his milking cup and pails dangling down his back Upon your hail he will sit down in front of your door and milk for you the desired quantity and sell it at 40 centavos a liter with the foam or 50 centavos a liter without foam Sometimes there are accidents and his cows are bumped into by a dairyman's horse cart, or even motor truck, laden with bottled milk for delivery on the same street, but these occasions are rare Usually these antiquated and modern systems of distribution exist amicably side by side, and the varying tastes of all the patrons are satisfied

The greater part of the milk consumed in Buenos Aires is brought into the city in tin cans of about 10-gallon capacity on the early morning trains From these trains the milk is taken by delivery wagons and distributed to the customers from the original can, although the number of dairies which bottle the milk in their own plants and pasteurize it is increasing

Butter is rarely sold in cartons, but is usually wrapped in parchment paper in square blocks, round rolls, or loaf-shaped packages, in weights of 100, 200, or 500 grams and of 1 kilo For shipment these packages are packed in wooden boxes of various sizes Butter for export is packed in boxes of exactly 1 cubic foot

Ice cream is mostly of home manufacture, in the sense that it is manufactured on the same premises where it is sold, and there is practically no delivery from factory to dealer

There is considerable production of chocolate, biscuits, and candy in Buenos Aires, Rosario, and other large centers, but this is about the only industrial use which is made of the milk production, aside from dairy consumption

It is customary to market cream in a very concentrated form, containing from 50 to 55 per cent of butterfat Cream, even when served on the table, is usually so thick as to resemble butter rather than cream

EXPORT TRADE IN DAIRY PRODUCTS

For the 5-year period from 1909 to 1913 the average annual exports of dairy products from Argentina were as follows Butter, 2,943 tons, casein, 2,972 tons, and cheese, about 1 ton The large increase in production began in 1917 and has gained fairly steadily since, the average annual export from 1923 to 1927 having been 27,125 tons of butter, 15.208 tons of casein, and 1,532 tons of cheese This is in addition to supplying the home market

The following tables show the export and import trade in dairy products over a period of years

EXPORT OF MILK PRODUCTS FROM ARGENTINA, 1900–1927

[Metric tons]

Year	Butter	Cheese	Casein	Year	Butter	Cheese	Casein
1900	----	1	----	1914	3, 481	3	2, 925
1901	----	1	----	1915	4, 032	6	2, 608
1902	----	6	94	1916	5, 831	227	2, 951
1903	4, 594	3	319	1917	10, 311	2, 728	4, 876
1904	4, 634	7	1, 694	1918	14, 569	6, 430	3, 564
1905	4, 639	2	3, 020	1919	15, 349	4, 794	2, 447
1906	3, 797	----	3, 081	1920	16, 623	10, 092	7, 679
1907	2, 616	----	2, 035	1921	22, 751	5, 676	7, 779
1908	3, 060	1	2, 058	1922	24, 318	6, 162	6, 377
1909	3, 381	----	2, 775	1923	30, 899	5, 270	10, 690
1910	2, 479	----	2, 973	1924	29, 603	1, 284	14, 528
1911	1, 395	----	2, 169	1925	26, 099	128	16, 591
1912	3, 676	1	3, 501	1926	27, 855	307	19, 846
1913	3, 784	7	3, 446	1927	21, 272	672	14, 385

EXPORTATION OF CASEIN FROM ARGENTINA, 1922–1926

[Metric tons]

Destination	1922	1923	1924	1925	1926
Germany	1, 849	1, 654	3, 477	4, 675	4, 228
United States	3, 846	7, 158	7, 700	8, 007	11, 570
Belgium	10	33	382	597	118
Great Britain	351	1, 037	1, 536	1, 422	1, 404
Brazil	1	----	----	----	----
Sweden	25	146	238	271	257
Italy	70	101	342	399	177
Japan	20	50	46	182	237
Spain	70	141	212	213	303
Netherlands	124	179	233	484	477
France	10	24	----	20	----
Denmark	----	67	10	----	----
Finland	----	75	291	241	304
Canada	----	25	----	----	----
Norway	----	----	40	10	20
Cuba	----	----	20	----	----
South Africa	----	----	1	----	----
Danzig	----	----	----	----	99
Lithuania	----	----	----	----	15
Dutch possessions	----	----	----	----	10
English possessions	----	----	----	----	10
Portuguese possessions	----	----	----	----	231
Total	6, 376	10, 690	14, 528	16, 591	19, 460

Imports of Condensed and Malted Milk into Argentina

Country	1924	1925	1926
CONDENSED MILK	*Kilos*	*Kilos*	*Kilos*
Germany		4,322	32,451
Chile	2,458	5,495	14,954
Denmark	8,532	69,146	114,683
Spain			2,068
United States	88,710	109,916	138,979
France			189
Italy	43,282	13,057	30,347
Norway			75,504
New Zealand	12,581	68,831	23,133
Netherlands	4,877	10,068	5,240
English possessions			8,692
United Kingdom	51,635	25,368	75,925
Switzerland	216,950	229,884	166,497
Sweden		2,117	
Uruguay		377	2,626
Total	429,025	538,581	691,288
MALTED MILK			
Germany			9,958
United States	39,072	28,922	25,689
France			7,312
Italy			1,946
United Kingdom			7,547
Sweden			27,741
Total	39,072	28,922	80,193

BRAZIL

M A Cremer, American Trade Commissioner, Rio de Janeiro

It is difficult to calculate the total production of milk in Brazil, as there are no means of obtaining definite information, even in those States where the dairy industry is most active The Federal Government prepares annually a table of estimates of production for the leading States, however, and with this for a basis, we can arrive at an approximation of the production of the entire country The latest figures published are the following

	Liters
Minas Geraes	830,000,000
Rio de Janeiro	192,000,000
Sao Paulo	30,000,000
Rio Grande do Sul	20,000,000
Santa Catharina	12,000,000
Parana	800,000

The estimated production of these States totals 1,084,000 liters The contribution of the other 15 States and the Federal District is very small During the last three years there has been a tendency to increase production in the States of the north and the interior, principally in the former, where the need for increasing and improving milk production is now coming to be realized A rough calculation of milk production in the States not mentioned in the foregoing statement would increase the total for all Brazil by not more than 500,000 liters Total production, therefore, may be estimated at 1,085,300,000 liters

SANITARY SUPERVISION

Sanitary supervision is enforced only in the principal cities, where all milk arriving is subject to inspection In the smaller cities very often no inspection is made The inspections are made with the purpose of making sure that the milk has been pasteurized, that it has the proper butterfat content, that it is fresh, and that the containers are clean Nearly all consumers of milk boil it before using Some people even boil canned milk No milk is permitted to be sold in the larger cities with less than 3 to 3½ per cent fat, unless a statement to this effect appears on the bottle

USES OF MILK

Fluid milk—The six States of Minas Geraes, Rio de Janeiro, Sao Paulo, Rio Grande do Sul, Santa Catharina, and Parana provide their own populations with fluid milk, and also produce canned milk, cheese, and butter for consumption in the rest of the country The Federal District of Rio de Janeiro is supplied by the States of Minas Geraes and Rio de Janeiro These two States together supply the Federal District annually with 43,000,000 liters of fluid milk The home consumption of the two States themselves is estimated at one-fourth of the amount they produce

It is impossible to calculate, with any chance of approximation, the percentage for all Brazil of fluid milk used for direct consumption It may be stated, however, that the percentage is small

In the Federal District the average consumption of fluid milk per inhabitant is 90 grams, in Sao Paulo, 173 grams; in Campinas, 64 grams, in Florianapolis, 73 grams, in Bello Horizonte, 70 grams, in Juiz de Fora, 41 grams in Sao Luiz, Maranhao, 26 grams, in Belem, Para, 20 grams, in Recife, 56 grams, in Maceio, 17 grams In most localities the average consumption is insignificant Except for the recent establishing of three modern plants in Sao Paulo, the handling of milk still follows old-fashioned methods Even in Sao Paulo, the most progressive State, advancement is somewhat retarded by the fact that the pasteurizing and bottling is done at the point of destination instead of at the shipping point.

Butter—The milk available for butter and cheese making is more or less equally divided between these two products Butter is prepared in plants which not only produce cream but buy it from independent dairy owners There are, therefore, thousands of dairy owners who separate their own cream by means of mechanical separators The skimmed milk is generally used for feeding hogs and cattle

The six States previously mentioned as being the principal producers of milk produce annually 25,000,000 kilos of butter. No estimates are available of the amount of butter produced in all Brazil, but production outside these six States is negligible In the remainder of Brazil practically the only butter to be had is that put up in tins by the six dairy States In northern Brazil this tinned butter is all that can be obtained It is often of poor quality and sometimes rancid A number of butter producers are known to use adulterants, principally vegetable oils Occasionally the public health authorities of Rio de Janeiro condemn large lots A few months ago they condemned tinned butter prepared by eight different producers

Much of the butter sold in Rio is put up in cheap paper cartons containing 250 and 500 grams This is generally referred to as fresh butter It is usually unsalted and is more expensive than that coming in tins, which is also sold in large quantities Fresh butter is used only by the upper class and the best hotels

Because of the poor facilities for shipping fresh butter, its consumption is limited to the large cities of Rio de Janeiro, Sao Paulo, and the southern States Fresh butter is practically unobtainable in the northern cities

The tinned butter is packed in containers ranging in capacity from 1 to 5 kilos The cartons for fresh butter are made of a plain white domestic cardboard of cheap grade and bear no advertising

Cheese—The production of cheese is carried on by a large number of individual producers on their own farms, although there are a few large firms also engaged in its preparation Many farmers make two or more cheeses a day and sell them to dealers, who in turn dispose of them in the larger consuming centers The production of cheese in the six dairy States is estimated as totaling 13,000,000 kilos annually Most of this is consumed in the central and southern States themselves Very little is shipped north, as most of the cheese produced will not keep for more than one to two weeks.

Ice cream—Ice cream, such as is known in the United States, was introduced only a few years ago, and the consumption is very small Previous to the introduction of ice cream, only ices were known in Brazil There are now at least seven American ice-cream counters in Rio de Janeiro and several in other parts of the country Some of the stands in Rio make their own cream, and the others buy from a small plant set up a few years ago by two Europeans This plant is advertising its ice cream but is making little headway It will be some time before it will be working at capacity Modern machinery is used

Condensed and powdered milk—There are four factories producing condensed milk and three making powdered milk The annual production of condensed milk totals 1,870,000 kilos, while the production of powdered milk is as yet small

All the local production of canned condensed milk is sweetened No unsweetened or evaporated milk is produced A small amount of sweetened condensed milk is imported

Use of by-products—The skimmed milk is usually fed to livestock on the farms A few creameries use it for making casein, which they sell to three factories making casein plastics The production of casein is limited, and little is available for exportation

Skim milk, buttermilk, and whey are rarely sold by the creameries or individual dairy owners, there being practically no demand for these products

TRANSPORTATION AND DELIVERY EQUIPMENT

Part of the milk produced in the States of Minas Geraes and Rio de Janeiro is shipped by rail to the Federal District for consumption there and part is delivered to milk-handling plants at various points along the railway These plants, located at over 50 different shipping points, pour the milk into large containers or vats, where impurities apparent to the eye can be eliminated The milk is then run through a centrifugal separator and afterwards pasteurized

Part of it is then frozen solid and the remainder is mixed with frozen milk of the day previous put in cans, and placed aboard ordinary railway cars

The trip to Rio de Janeiro may require 12 hours or more Upon arrival there the public health authorities make a cursory inspection, and the milk is delivered either to retailers or direct to consumers The two direct-to-consumer services deliver the milk by means of trucks which visit the residential districts in the early morning hours stop at certain street intersections, and call their customers by means of a horn These appear with cans, bottles, and pans and get the quantity they desire The retail dealers, who bottle the milk they purchase, generally do business on a small scale

Besides the milk received from the interior, Rio is also supplied with milk by a number of small dairy owners (none of whom have more than 10 to 15 cows) who keep their cows in small buildings located all over the city even in the residential districts These dairy owners bottle the milk and have their own customers and delivery service

The same delivery system in vogue in the city of Rio de Janeiro was until some time age used in the city of Sao Paulo There are now in operation in Sao Paulo three modern milk-handling plants. One of these was constructed as a cooperative enterprise by the owners of small dairies that are distributed throughout the city The second was put up by a group of milk shippers from the northern part of the State of Sao Paulo, and the third was erected by an independent company These three plants have modern American equipment, practically the only modern milk-handling equipment in Brazil They have the latest pasteurizers and bottle washing and filling machinery The pasteurizers used by shipping plants in the interior are almost all out of date

PREVALENCE OF EUROPEAN EQUIPMENT

The machinery houses in Rio de Janeiro which sell milk-handling machinery and equipment are practically all European firms They introduced European products a numbers of years ago, and the milk industry has become so accustomed to buying and using European manufactures that American manufactures are purchased only when the European products are not available An example is the case of one of the large milk-handling plants recently erected in Sao Paulo Europe could not supply the equipment wanted because the European industry is still lagging in progress. American equipment was secured through a European firm which specializes in selling European dairy equipment and supplies, but which also represents an American manufacturer of modern mik-handling equipment

LOCAL MANUFACTURE OF DAIRY EQUIPMENT

Some of the small, old-type pasteurizers and other small equipment used for milk handling and butter making are now being manufactured in Brazil Most of the small butter churns are made locally, but the larger churns are still being imported The butter industry still uses wooden barrels for churns, and nearly all the processes involved in making butter are carried on by hand Some American canning machinery is used in canning butter

It will be of little value for any American manufacturer not represented already to try to secure a connection in this market without making, first of all, a careful investigation of the possibilities for sale of his products, as well as of the firms available as distributors or agents Because of the competition between European manufacturers and the general lack of familiarity with American equipment, few machinery houses are interested in dealing with American manufacturers If the American manufacturer were to study the possibilities and decide the market to be worth while he could prepare a plan of campaign and probably secure a good connection He would perhaps find it necessary to make some concessions for introductory purposes, including a small expenditure for advertising

A list of importers or agents for dairy and ice-cream equipment and supplies in Rio de Janeiro, also firms which might be interested, may be secured from the Commercial Intelligence Division, Bureau of Foreign and Domestic Commerce

CHILE

Robert G Glover, Assistant Commercial Attache, Santiago

The Chilean market for dairy equipment and supplies is very small and is confined mainly to the central zone, which embraces that section lying between Coquimbo in the north and Concepcion in the south North of Coquimbo there is very little vegetation and there are very few cattle in that region, consequently the demand for dairy equipment is practically nil From Concepcion south, and especially in the Provinces of Valdivia and Territorio Aysen, dairying is one of the chief industries, but there are very few modern plants and the sale of equipment is small In these two Provinces, which are settled largely by German landowners, a large portion of the milk produced is turned into butter and cheese There are no large consuming centers for fresh milk in that region and facilities for shipping to the central zone and to the nitrate and copper fields are inadequate, consequently dairies and farmers are forced to turn the greater amount of their production into butter and cheese In 1927 Chile produced 1,506,000 kilos of butter, of which all but 400,994 kilos was made in the two above-mentioned Provinces

MILK CONSUMPTION

While a noticeable improvement has taken place in the type of equipment used in the central zone, little progress has been made in improving sanitary conditions, and the production of milk per capita, not only in the central zone but throughout the country, is very low Statistics for 1927, which are the latest available, reveal that 193,780,300 liters of milk were produced, of which 102,000,000, or slightly less than one-half liter per week for each inhabitant, was consumed in its natural state The remainder represents the quantity manufactured into butter, cheese, and evaporated, condensed, and powdered milk

Only a small percentage of fresh milk is used for drinking without being boiled It is a rarity to see anyone drink fresh milk either in his home or in the dairy kitchens and soda shops. All milk used for coffee or tea is first boiled Chileans have not as yet acquired the habit of eating breakfast cereals or other foods that in the United States are usually served with fresh milk or cream For infant feeding, families of the middle and wealthier classes use powdered milk almost exclusively

SANITARY SUPERVISION

The lack of proper refrigerating, distributing, and sterilizing facilities may be assigned as the main cause for the present disregard of sanitary measures in handling milk However, the problem of educating laborers to the importance of sanitation will continue to be serious for some time Many of the dairies in and around Santiago and Valparaiso, the two largest towns in the country, have installed modern equipment, and recently a few of the dairies undertook to pasteurize and bottle milk, but as laborers have not been educated to the necessity of following out the scientific methods of safeguarding every operation from milking to delivery, very little has been accomplished in setting a standard and holding to it

Although the Government and municipalities have enacted sufficient laws to regulate and insure sanitation, it has been a very difficult task to enforce them, especially in view of the fact that there are practically no refrigeration facilities or centralized creameries where small farmers can sell their milk direct Even some of the large, so-called up-to-date dairies do not follow the practice of cooling their milk by artificial means but use running water instead The small farmer with three to six cows uses any means of cooling and is ignorant of the advantages of modern equipment

DEMAND FOR IMPROVED EQUIPMENT

The marked improvement that has taken place in the Chilean dairy industry during the last few years is beginning to react favorably on the sale of dairy equipment and supplies Importation of these items for 1927, while very small, increased approximately 50 per cent over the previous year, and the imports for 1928 were somewhat above those of 1927 This condition has been brought about largely by a campaign which has been waged for several years by the doctors and the public press for a general improvement of the milk supply

Public sentiment is forcing the larger dairies to install modern equipment and to follow scientific methods of handling dairy products A few electrical milk-cooling systems were sold to dairies near Santiago last year. These installations mark the first appearance of this scientific cooling process Pasteurization plants are becoming popular with dairies that cater to the high-class trade Cream separators, churns, and sterilization units are beginning to make their appearance in many of the large plants

While a noticeable improvement has taken place in the type of equipment used, very little progress has been made in improving the quality of milk, and the consumption per capita, as previously indicated, is very small Poor facilities for distributing and the lack of refrigeration account in part for the small production

AMERICAN DAIRY EQUIPMENT GAINS IN 1928

Judging from the official Chilean customs statistics, which carry only a general classification for dairy equipment, the import trade underwent a considerable change in 1928. These figures show that for the first time imports of dairy equipment from the United States surpassed those from Germany. While the money values involved were not large, this development is of interest as indicating possibilities for United States exports. Imports of German dairy equipment amounted to approximately $30,000 in 1927, as compared with only $9,000 from the United States; for 1928 the German trade fell to about $20,000, whereas the share of the United States rose to $24,000.

This import trade is shown in the following table, which indicates that most of the imported dairy equipment is now of American or German origin.

CHILEAN IMPORTS OF DAIRY EQUIPMENT, 1924–1928

Country	1924		1925		1926		1927		1928	
	Kilos	Pesos[1]	Kilos	Pesos[1]	Kilos	Pesos[1]	Kilos	Pesos[1]	Kilos	Pesos[1]
Germany	88,078	160,626	45,079	168,237	62,880	204,989	70,755	249,137	40,967	165,850
Argentina	--------	--------	--------	--------	--------	--------	58	600	--------	--------
Belgium	--------	--------	1,568	3,084	328	3,000	249	2,320	--------	--------
Denmark	1,597	3,954	--------	--------	45	144	1,065	1,010	2,088	6,780
United States	11,409	38,817	13,975	37,053	26,288	49,304	27,934	72,564	113,369	199,568
France	1,769	5,529	1,120	3,600	--------	--------	755	5,840	--------	--------
Great Britain	465	3,890	102	669	1,449	7,080	514	2,600	--------	--------
Netherlands	--------	--------	--------	--------	4,636	9,183	1,122	4,238	475	5,215
Italy	--------	--------	--------	--------	--------	--------	10,493	34,100	--------	--------
Peru	--------	--------	--------	--------	--------	--------	51	300	--------	--------
Sweden	335	960	1,010	5,577	1,119	7,116	3,030	5,590	1,224	4,910
Switzerland	--------	--------	--------	--------	--------	--------	609	2,985	3,650	7,800
	53,673	213,576	62,854	218,220	96,745	280,816	116,635	381,284	161,773	390,123

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[1] Mint par value of peso is $0.1217.

MILK DISTRIBUTION

The problem of distribution is the greatest obstacle in the way of the development of the Chilean dairy industry. Chile is thirty times as long as it is wide and extends from 17° to 56° south latitude; it is bordered on the east by the Andes Mountains and on the west by the low Coast Range. Railroad tariffs are naturally high, and schedules are not always conveniently arranged to permit the timely delivery of milk to the large consuming centers. Highways have not as yet been improved to such an extent that trucks can be advantageously used, even near the large cities. Dairies that are located some distance from the cities are virtually compelled to ship their milk to market in large tin cans, which are loaded in ordinary box cars. Several railroad refrigerating cars were purchased by the State Railway some time ago in order to assist farmers and dairies in marketing their products to better advantage, but as these cars have never been properly serviced, their refrigerating value has been practically nil.

Upon the arrival of milk shipments by rail in the larger cities, both in the morning and in the afternoon, the large cans are unloaded onto carts and small delivery trucks, from which it is delivered direct to the trade Venders measure out the customer's milk supply direct from the cans or draw it through a faucet attached to the stationary can on the delivery cart The portion of milk bottled is not known, but judging from the small number of dairies that bottle milk, it is believed to be less than 5 per cent Over 90 per cent of the milk reaches the customer without any sort of refrigeration. Very few homes possess refrigerators or ice boxes, consequently milk is seldom served for drinking at meals

BUTTER PRODUCTION

Little or no attention is given to scientific butter making by the small farmer, and while many of the large farmers have the proper equipment and facilities, they do not always follow out the well-defined principles of butter making. In the last few months, as a result of the introduction of electric refrigeration, independent butter dealers in Santiago and Valparaiso have begun to wrap butter and exploit their trade names These shops buy their supply from the small dairies in bulk, after which it is reworked and put up in prints of 90, 180, 250, and 500 grams, respectively. The quantity sold in this manner is small and is strictly confined to the better class of trade in the few larger cities

In 1927 Chile produced 1,506,000 kilos of butter, of which all but 400,994 kilos were made in two of the southern Provinces—Valdivia and Territorio Aysen Since this section is settled mainly by small farmers, mostly Germans, and is some distance from the larger cities, dairies are forced to turn most of their milk into butter and cheese

CHEESE PRODUCTION

The manufacturing of cheese is carried on in practically the same manner as that of butter Both large and small farms throughout the centeral and southern zones, as a general rule, keep dairy herds from which most of the milk is used in cheese making Prices are always good and the demand steady, and in view of the poor facilities for milk distribution cheese making is naturally more profitable

The manufacture of cheese during the past few years has shown a slight decrease Figures for 1927 show that the gross production amounted to 3,167,700 kilos, which was 394,900 kilos less than the total for the year of 1925 Importations amounted to 15,112 kilos

CANNED AND POWDERED MILK

Notwithstanding that Chile is a small market for canned and powdered milk, there has been a great deal of interest in the manufacture of evaporated, condensed, and powdered milk during the last few years To a very large degree this can be attributed to two main causes First, because of the poor sanitary condition of fresh milk many families prefer imported powdered milk for infant feeding, second, because of their distance from the dairy districts the nitrate and copper mines must depend on powdered and canned milks for their needs, and as there are many thousands of workmen employed in these two great industries, the demand is large and fairly steady.

Statistics reveal that for 1927 approximately 17,000,000 liters of milk were used in the manufacture of condensed milk, and the total output of both condensed and evaporated milk was 5,750,000 cans of 400 grams each A million liters of fresh milk were turned into 105,000 kilos of powdered milk

There are four companies engaged in the manufacture of canned and powdered milk A large wholesale grocery firm with branch houses in many of the important towns is the largest manufacturer, both of evaporated and of condensed milk This concern has been in the business about 15 years; its brands have a good reputation and are widely distributed There are no figures available as to the annual output of this firm's products, but judging from their wide distribution it can be safely estimated at about one-half of the total for the country

ICE-CREAM PRODUCTION

Of the total production of powdered milk, 45,000 kilos were reported to be used for making ice cream This appears rather high for Chile, judging from the fact that ice-cream making has not become universal, that is, not to the extent that it is practiced in the United States and some of the European countries Women and children are very fond of all kinds of ices, especially ice cream, but scarcely any of the dairy, kitchens or soda fountains make good, wholesome, palatable ice cream However, with the increased interest in the soft-drink business, which has been greatly stimulated by the introduction of electric refrigeration, more attention will be given to the manufacture of ice cream, and it will be only a matter of time before the quality will be on a par with that of other countries

There are no independent ice-cream factories catering to the retail trade, as is the case in practically every small city in the United States Tea rooms and soft-drink parlors that carry ice cream on their menu make their own ice cream, and its manufacture is done almost entirely by the use of small hand-operated freezers Railroad schedules and high tariffs practically preclude the possibility of creameries conducting out-of-town business It is also out of the question to distribute or deliver ice cream by truck in the rural districts because of the poor roads

FIELD FOR DAIRY EQUIPMENT

Cream separators—Considering the few modern dairies outside the central zone, the demand for cream separators is fair German, English, Danish, Swedish, and American separators are sold in Chile, but approximately 50 per cent of the volume of business has gone to a German machine which has been in the market for many years and which is well known throughout the entire country. The local representative of the German manufacturer, a large German concern having branch houses throughout the country, was one of the first local firms to engage actively in marketing dairying equipment—a fact which accounts for their enjoying the largest share of the business In late years an English separator has been selling well and is second only to the German make The principal reason American units have a small sale is that none of them are actively represented by firms specializing in dairy equipment So far as can be determined, most of them are ordered by local importers only when customers ask for them

Since only a few of the dairies are equipped with electricity, the greater volume of sales has been in hand machines, but now that the larger farmers near the principal cities are beginning to install current and concerns selling farm-lighting plants are beginning to break into the market, sales in power-driven separators should increase

Pasteurizers—Pasteurization is employed very little in Chile, as only a few dairies near the larger cities are equipped for milk pasteurizing In the Santiago district, which is the largest milk-consuming center in Chile, only two large plants follow the practice of pasteurizing all their milk, and one of these does not bottle any milk or cream Some of the other dairies have installed small pasteurizers, but most of them have used them very little

The outlook for the sale of pasteurizing plants is good, as the Government and municipalities are bringing more pressure to bear on the whole dairy industry for better methods of handling milk The principal problem is the education of the public to demand better milk, and at the same time to instill in the minds of the workmen the importance of sanitation Little interest has as yet been developed, thus the problem of sanitation is more difficult

Sterilizers—The importance of proper sterilization has never yet been fully appreciated by either producers or consumers Only a few dairies have modern equipment for washing and sterilizing bottles and cans In the average dairy submerging the cans in a tank of hot water or pouring water over them generally satisfies sterilization requirements It is said that many of the small dairies, having from 6 to 15 cans daily, do not even follow this practice

As might be surmised, the sale of machines for sterilizing and washing bottles and cans is very small, but now that a great deal is being said about the general improvement of milk sanitation, it is expected that a fair volume of business will be done in this line in the near future

Butter-making equipment—Most of the larger dairies have installed modern churning and butter-working equipment, and a good quality of butter is produced However, in the smaller establishments old-fashioned hand-operated churns are employed exclusively.

Well over 80 per cent of all butter sold is in bulk Only in recent years has very much attention been given to molding it with prints, and even now only in the larger cities like Santiago and Valparaiso is waxed paper used

The power-driven churns in use are principally of German and Danish make In the south, around Valdivia and Osorno, where most of the butter is produced, most of the hand-operated barrel churns are made locally

Coolers and vats—Several coolers of the brine type have been sold in the central zone during the last year, and there appears to be a growing interest on the part of all milk producers for better equipment of this kind Practically all the small dairies cool their milk by submerging it in large tin cans in running water.

A German, a Danish, and an American company are the principal suppliers of this equipment The American product is popular and there appears to be little doubt that the present volume of sales could be increased

There seems to be no particular preference for milk agitators and cream vats Most of the few in use have been supplied by Germany and the United States Only the most modern and up-to-date plants import such equipment, the rest use homemade articles

Milk-test supplies—Outside of Government officials and a few large dairy proprietors, scientific milk testing is virtually unknown, therefore the sale of equipment for this purpose is limited Some of the large dairies that depend on small producers for part of their supply, as well as the few milk producers' associations, test all their milk and have fairly up-to-date laboratories

Milk cans and bottles—No figures are available as to the percentage of milk sold in bottles, but judging from the small number of dairies that sell bottled milk, it can safely be said to be less than 5 per cent The sale of milk and cream bottles has therefore been very small, and the United States has furnished the entire demand In view of the growing interest in milk sanitation, the sale of milk bottles should increase, and as the local bottle factories do not seem to be able to produce a high-quality bottle, American manufacturers should continue to supply what trade there is in this line

Although milk cans are made locally, approximately 75 per cent of the demand is imported Sweden furnishes the larger share, mainly because of its low prices, and Germany supplies the rest of the imports

The preference is for a 1-seam can, ranging in capacity from 30 to 50 liters However, smaller sizes, especially those of 5 to 10 liters, which are used principally by deliverymen for measuring, are also in great demand It is doubtful whether American manufacturers can compete in this line, owing to the demand for an extremely cheap product

GENERAL CONCLUSIONS

As will be seen from the foregoing, Chile is a small market for dairy equipment and it will be some time before conditions improve to such an extent that there will be a fair demand for many of the items classified under this head However, now that the Government is giving considerable attention to the assistance of farmers, not only in improving their methods but also in providing better facilities for distribution, it is believed that great progress will be made in the dairying industry during the next few years A law was passed on January 15, 1929, which provided better financing facilities for the farmers and at the same time granted them special privileges in the matter of reduction of freight tariffs This law gives to agricultural societies—that is, cooperative societies composed of five or more members—the privilege of a reduction of 25 per cent on transportation of articles which the members produce and 50 per cent reduction on the transportation of machinery, tools, seeds, and other necessary articles destined for the improvement of members' farms These facilities will stimulate greater interest in dairying, which in turn will create a greater demand for modern equipment.

The chief obstacle to sales of highly specialized dairy equipment is the lack of competent workmen to operate such machines successfully Dairymen themselves are anxious to put in the latest equipment and modern methods, so that the present problem inheres largely in the instruction of workmen in the proper use of this machinery Now that the labor cost is rising, however, there are indications that progress will be made in introducing improved dairy equipment

METHODS OF SELLING AND DISTRIBUTION

Chile, being about 3,000 miles long by approximately 100 miles wide, presents peculiar problems in the sale of dairying equipment. Traveling is very expensive, and the market is very small It is thus impractical for manufacturers to establish branch houses or keep special salesmen in the country to call on the small dealers Manufacturers who are enjoying good business are those who have been able to place their agencies with one of the few large local merchandising houses which maintain branch houses throughout the country and have the necessary sales organization to cover the trade

American manufacturers can accomplish very little in the way of establishing connections with local firms by correspondence, the better method is to send a representative Practically all firms interested in handling dairy equipment already have satisfactory connections, mostly with European manufacturers To secure agencies for American lines, therefore, would in many instances require the displacement of competing representatives A liberal advertising program, together with close cooperation, would go a long way toward securing a foothold in this market

A list of Chilean importers of dairy equipment who might be approached by American suppliers may be secured upon application to the Commercial Intelligence Division of the Bureau of Foreign and Domestic Commerce

COLOMBIA

B L Hunt, American Commercial Attaché, Bogota

Colombia, as a whole, has, only within the last few years, begun to appreciate the advantages of modern machinery and modern ideas with respect to sanitation and health. A very large percentage of the population of Colombia is composed of the poorer classes, who have never adopted milk as one of the staple foodstuffs, and even in the cities only a small percentage of the population uses milk and milk products to the extent known in the United States

The information which follows was obtained principally from an American agricultural expert who has been in charge of one of the very few comparatively modern dairy farms in Colombia This information, however, has been checked by Dr. Rafael R Camacho, chief of the Agricultural Division of the Department of Industries of the Colombian Government

MILK PRODUCTION AND SANITARY SUPERVISION

In the Bogota district, which is, perhaps, a fairly accurate guide for the other but separated districts of Colombia, the production of milk for delivery to this city is approximately 50,000 to 60,000 liters a day

In the city of Cali milk is purchased and distributed by the municipality and must, according to local regulations, be pasteurized before sold So far as is ascertainable, this is the only city in Colombia where this condition obtains In Bogota there is practically no municipal supervision and, with the exception of one small pasteurization plant which supplies approximately 2,500 liters a day, the production of milk is practically free from sanitary supervision The same, also, applies to milk products

USES OF MILK

Practically all the milk produced is consumed as fluid milk Relatively small quantities of butter are used in Colombia as compared with consumption in the United States There are, practically speaking, only one or two creameries or factories worthy of the name in the Bogota district Aside from the product of these two creameries butter is produced on the farms No statistics, however, are available

In the Department of Bolivar there are a few cheese and butter factories, but the amount of their production is not known The production of cheese, however, is even much smaller than that of butter

No condensed, evaporated, or powdered milk, or ice-cream powder is produced

Practically no skimmed milk, buttermilk, or whey is fed to stock, nor are these used in the manufacture of by-products

FACTORY EQUIPMENT

There is one small pasteurization plant in Bogota, one in Medellin, and one in Cali It will be readily seen that in Colombia the market for pasteurization machinery and other modern machinery for dairy farms and for the manufacture of dairy products is an open one It must be realized, however, that the Colombian people in general are not aware of the importance of modern dairy equipment; consequently the market will have to be built up from the bottom, beginning with a program of education to convince the people that improved equipment is desirable and would also prove profitable

DISTRIBUTION OF FLUID MILK

The milk used in the cities of Colombia reaches its destination by three principal means of transportation—by mule back, by horse-drawn carts, and by train From farms which are located close enough to the cities milk is usually transported on mule back, 10-gallon cans of milk being carried by each mule, horse, or horse-drawn cart From greater distances the milk is brought by train in the same kind of containers

It is estimated that not more than 1 per cent of the entire volume of milk is bottled The amount distributed in the city of Bogota, for example, is estimated at 700 bottles a day, as against a dairy distribution equivalent to approximately 50,000 to 60,000 bottles Such milk as is delivered in bottles is mostly pasteurized and is bottled at the pasteurization plant

PACKAGING OF BUTTER

Practically no butter is packed in cartons The few modern creameries pack their butter in 1-pound containers The butter produced on the farms is likely to be packed in almost any kind of container, from banana leaves to paper, with no uniformity in size or weight of package

ICE-CREAM PRODUCTION

A comparatively small quantity of ice cream is produced in Colombia In some of the cities of the lower altitudes, such as Barranquilla, Cartagena, and Cali, the modern American ice-cream soda fountain is being introduced, but up to the present time is properly classed as somewhat of a novelty There is apparently no ice-cream manufacturing plant in Colombia Such soda fountains, tea rooms, and other establishments as dispense ice cream usually manufacture their own product In the city of Bogota there are, so far as is known, only three places aside from the hotels in which ice cream is manufactured by the dispenser

LOCAL DAIRY PUBLICATIONS

There are no publications in Colombia devoted to the dairy industry The Revista de Industrias, published by the Ministerio de Industrias, occasionally contains articles on dairying and other related subjects

CUBA

O R Strackbein, Assistant Trade Commissioner, Habana

It is not known how much milk is produced in Cuba, nor has it been possible to secure an estimate, but the fact that Cuba is a heavy consumer of condensed milk indicates that the per capita production of fresh milk must be low In 1926, for example, Cuba imported slightly over 22,000,000 kilos of condensed milk with a value of little over $5,000,000 Since the population of the island is approximately 3,500,000, it can readily be appreciated how limited must be the local production of milk

ESTIMATED MILK CONSUMPTION

The department of sanitation estimates the daily consumption of fresh milk in Habana at 250 to 300 grams per capita This would give a maximum of 150,000,000 grams for the entire city of 500,000, or about 150,000 liters The manager of the leading dairy supply house estimates the daily Habana consumption at 140,000 quarts—80,000 brought in from the outside and 60,000 produced in the immediate vicinity of the city The same individual estimates the consumption of Santiago de Cuba, the city second in size in Cuba, at about 25,000 quarts a day The remaining cities are small and their aggregate consumption would hardly equal that of Habana In the country districts there is a rather irregular supply of fresh milk varying with the season of the year. During the rainy season there is often an overproduction for local needs, and milk is often thrown away because it cannot be otherwise disposed of

SANITARY REGULATIONS

Under date of March 11, 1929, new regulations (published six months previous) affecting milk and milk products went into effect The purpose of this law is to bring about a milk supply meeting high standards of bacteriological and chemical purity A translation of a portion of these regulations, especially those requirements affecting the market for dairy equipment and supplies, is included in this report

USES OF MILK

Nearly all the milk used in Cuba is consumed as fluid milk, imports being largely relied upon to fill the demand In Camaguey Province there are several butter factories, but their production is only a few hundred pounds a day There is a factory in Habana which produces several hundred pounds of Patagras type of cheese daily. The Cuban farmers make very little butter and cheese, therefore local production has not been an appreciable market factor Under the increased tariff protection and with the enforcement of the new sanitary regulations increased local production of both butter and cheese is expected, but more especially of butter

Condensed milk is soon to be produced in Bayamo, Camaguey, where the Nestle Anglo-Swiss Condensed Milk Co , is now erecting a plant for that purpose

Buttermilk is almost unknown in Cuba, and its consumption is limited almost exclusively to the resident Americans and North Europeans One important dairy produces about 150 quarts a day Skim milk and whey are also little known It should be kept in mind that with one or two exceptions modern dairying has not been carried on in Cuba but that progress may be expected under the influence of the new regulations The equipment of dairies now existing is of American manufacture almost exclusively

DISTRIBUTION OF DAIRY PRODUCTS

In the urban centers milk is delivered by trucks or wagons This is the system followed in Habana, Santiago de Cuba, Cienfuegos, and to some extent in Santa Clara The milk is delivered from house to house in sealed bottles, the empty bottles being gathered during the next trip, or it is poured from milk cans into containers provided by the consumers, or delivered in cans When the consumers, such as cafés, restaurants, or hotels, buy in sufficiently large quantities delivery is made in or from milk cans rather than in bottles It is thought that about 80 per cent of the milk sold is delivered in cans

In the country districts milk is shipped by train, if such transportation is available, to villages and towns, where it is further distributed to cafés, milk-dispensing stores, and other distributing points For railroad transportation milk cans are used Very often transportation in the rural districts is effected on horse or mule back, two cans being tied together by a cord and balanced on the animal's sides by passing the cord over the saddle

Under the new regulations transportation must be made under some system of refrigeration, with the exception of the milk delivered on horse or mule back In that instance only the morning hours may be used in delivery and no time must be lost after milking.

Where roads exist the milk must be kept cold—a requirement which should create a considerable demand for double-walled delivery cans Already a considerable number of these have been sold The type used is one with a double wall and cork filler, built on the metric measure It is believed that the single-wall can will eventually disappear entirely

It will thus be seen that bottling is less important than delivery in cans Such bottling as is done takes place in the dairies, the milk simply being transferred from buckets into bottles Very few filters have been used One of the leading dairy-supply houses sold only 16 filters during 1928, of which 6 were sold in Habana Under the new law the bottling requirements are more rigid because of the provisions relating to cooling and to bacteria content

Pasteurization has been little developed but, as already pointed out, considerable expansion is under way and in prospect There is one plant in Habana and another in Cardenas which have a combined output of about 18,000 quarts a day The equipment is of American manufacture

Nearly all the butter produced in Cuba is packed in ¼-pound cartons One factory places on the market an oleomargarine product in tins and disposes of about 600 pounds a day

Ice cream is delivered in tubs and cans directly from producers to those dispensing it The latter keep it in these containers, which they pack in ice and salt or place in electrically refrigerated counters.

RECENTLY ESTABLISHED AND PROPOSED DAIRY PLANTS

With the development of the Cuban dairy industry in the last few years there has come a demand for more and better refrigeration and pasteurization facilities This demand is not confined to the Province of Habana, but exists in several other Provinces The plants which have been installed are generally located in or near the large cities, such as Habana, Santiago de Cuba, Cienfuegos, and Camaguey An American company organized a Cuban branch in 1929 and has recently established creameries and several pasteurization plants at various points in Cuba Nearly all the large plants now in operation are owned by either Americans or British.

Some 10 milk producers' associations in the Province of Habana have decided to erect a refrigeration and pasteurization plant near Guanabacoa, these have signed agreements whereby all their products will go to the new plant It is estimated that the new investment will amount to $300,000

Several plants for the production of "certified" raw milk, as well as a number of cheese factories, have been reported in prospect, while the two leading butter factories in Camaguey are undertaking to expand, one of them to include the manufacture of cheese

PUBLICATIONS AND DEALERS

The only magazine devoted to the dairy industry is Trinidad Productiva, published monthly by E Unshelm Siegert, Apartado 1935, Habana.

The names of importers or agents for dairy equipment in Habana may be secured from the Commercial Intelligence Division, Bureau of Foreign and Domestic Commerce

REGULATIONS NOW IN FORCE

As previously indicated, new regulations affecting milk and milk products, published in the Official Gazette six months previous, went into effect March 11, 1929. These regulations are of considerable interest to American suppliers of dairy equipment and supplies, since they vitally affect the market for these products.

With the enforcement of the new regulations, considerable improvement will take place in factory equipment, as well as in delivery methods. Some time ago one company sold six tanks to be mounted on trucks for tank-truck delivery of milk under refrigeration. This in itself will displace about 5,000 cans. It is thought that considerable equipment and machinery will be needed to meet the new requirements.

A translation of a portion of these regulations which relates particularly to dairy equipment follows. While this translation has been made with considerable care, the Department of Commerce assumes no responsibility for its accuracy or completeness.

DECREE NO. 142.—REGULATIONS GOVERNING MILK AND ITS PRODUCTS

UTENSILS FOR MANIPULATING AND BOTTLING MILK

ARTICLE 37. The containers and utensils for handling milk shall be of impermeable material, proof against the action of this product.

Said containers and utensils shall be manufactured in such manner that it will be easy to keep them clean; if they are soldered, they must be smooth to eliminate the possibility of deposits of impurities therein; if they are of metal, they shall not bear any dents nor be rusty. After having been used, they must be rinsed with clean water, washed with an alkaline solution, and again rinsed with clear water, after which they shall be sterilized by any approved system; if they are not put into immediate use after their sterilization, they must be kept in places where they will not be contaminated.

ART. 38. Milk intended for public consumption shall be kept in jugs, bottles, or any other proper containers, provided with sufficiently large openings to insure their cleanliness, and shall not be used for any other purpose.

Vessels containing the milk shall be provided with a proper cap that can be hermetically sealed to protect against dust and any other impurities; the use of straw or any other improper material to fasten the caps is prohibited.

The bottling of milk intended for public consumption must be effected mechanically, excepting such milk as may be shipped to supply depots of pasteurization plants.

If the container is of glass, it must be of white material and transparent; its cap must be of an impermeable material, sterilized, of natural color and mechanically applied; its outer hood shall likewise be of impermeable material adjusted mechanically to the collar of the bottle, bearing in clear and intelligible printed letters the name and address of the supplier or producer and the class of milk which it contains.

The caps, outer covers, and bands, and the system of adjusting (fastening) them must be a type approved by the Administration of Public Health.

If the container is of metal, its cap shall be sealed with wire and a lead seal, provided with a label printed in the same form as the outer cover of the glass containers.

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ART. 40. Wagons used for the municipal distribution of milk directly to the consumer must have a clean inside floor, smooth and covered with an impermeable material. If they are divided into compartments for the placing of the milk containers, the latter must be of metal and movable, to insure cleanliness. The outside must be oil-painted, indicating in clear and visible letters the kind of milk they carry, the number of the sanitation license, and the name and address of the owner.

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ART 44 Those charged with the distribution of milk directly to the public hall effect such distribution in the special containers in which the milk was riginally bottled in the dairies or pasteurization plants

Excepted from the compliance with this provision are establishments such as afes, canteens, inns, hotels, etc, where the milk is consumed

ART 45 In the case of accidents to vehicles intended for the transportation t milk and which prevent its immediate transportation, the milk may be ransported as the circumstances may permit, provided always that such distribution may be effected in such manner as to insure proper sanitation, and notice thereof be immediately given to the proper local sanitation office for rompt verification

SALES OFFICES FOR MILK THAT IS TO BE USED DIRECTLY

ART 46 Establishments such as cafes, restaurants, dairies, canteens, etc, where there is dispensed for consumption on the premises, fluid milk and any roducts thereof subject to the same requirements as the milk itself, for proper reservation, are obligated to keep the milk and its products in refrigerators r special compartments thereof intended exclusively for these products, at a emperature not to exceed 15° C, excepting such products as are intended to be erved hot, which may be kept in a water bath in sealed or capped containers

ART 47 The sale of milk and of any milk products subject to the same equirements as milk itself to insure proper preservation and directly delivered o the public in the special containers in which they were originally bottled n the dairies, pasteurization plants, etc, may be effected in any establishment hiefly devoted to their sale and which shall preserve them in refrigerators or ompartments thereof exclusively reserved to these products at a temperature not to exceed 15° C, provided that they have obtained the proper sanitation ertificate

CERTIFIED RAW MILK

ART 48 By certified raw milk is meant milk whose purity has been established and maintained from the moment when it was received up to its delivery o the consumer, on the basis of the most perfect hygiene and of a constant efrigeration at a temperature not exceeding 10° C and whose content in bacteria (colonies) does not exceed 10,000 per cubic centimeter

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ART 59 Once the containers have been capped, they must be immediately hipped to the cooling station, where the milk must be at once cooled at a emperature between 3° and 10° C, this cooling shall be effected by adequate quipment which will perform this work in shallow vessels or while the milk s running

ART 60 The milk shall be bottled, capped, and recapped mechanically in white transparent glass containers with wide openings

ART 61 The wagons used for the distribution of this kind of milk in addition o combining the requirements stipulated in "General provisions" of this regulation, must be painted white on the outside and the descriptive letters n dark blue

ART 62 The vessels containing this kind of milk must be delivered directly nto the hands of the consumer or of the one representing him

RAW MILK

ART 63 Raw milk means milk whose purity has been established and maintained, from the moment when the milk was obtained to its delivery to the consumer, on the basis of good hygiene and of a refrigeration at a temperature not exceeding 12° C, immediately after it has been obtained and not to exceed 15° C upon its delivery to the consumer, and whose content in bacteria is determined in accordance with the following scale

During the first year while this regulation is in force not more than 500,000 bacteria (colonies) per cubic centimeter

During the second year while this regulation is in force, not more than 250,000 bacteria (colonies) per cubic centimeter

During the third year and years following the going into force of this regulation, not more than 100,000 bacteria (colonies) per cubic centimeter

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ART 70 * * * (c) The containers for the milk while the milking is proceeding must be provided with a proper strainer and with an adjustable top which must be adjusted immediately after the said containers have been filled

ART 71 When the containers have been capped they must be shipped immediately to the cooling station where the milk must be forthwith cooled at a temperature ranging between 3° and 12° C This cooling must be effected by adequate equipment which will permit the cooling to be done in shallow vessels or while the milk in running

ART 72 Bottling of this kind of milk shall be made in accordance with the requirements stipulated in this regard in the "General provisions" of this regulation

ART 73 The wagons used for the distribution of this kind of milk, in addition to the requirements stipulated in the "General provisions" in regard thereto, must be painted yellow on the outside with a horizontal strip of black, 15 centimeters wide, and the descriptive letters in black

PASTEURIZED MILK

ART 74 Pasteurized milk is milk which during half an hour has been subjected to a temperature ranging between 63° and 65° C, immediately cooled at a temperature ranging between 3° and 10° C, and maintained up to the time of its delivery to the consumer at a temperature not exceeding 12° C The bacterial content of the milk which is to be pasteurized is fixed in accordance with the following scale

During the first year while this regulation is in force not more than 3,000,000 bacteria (colonies) per cubic centimeter

During the second year while this regulation is in force not more than 2,000 000 bacteria (colonies) per cubic centimeter

During the third year and following while this regulation is in force not more than 1,000,000 bacteria (colonies) per cubic centimeter

The bacterial content of pasteurized milk is fixed in accordance with the following scale

During the first year while the present regulation is in force, not more than 200 000 bacteria (colonies) per cubic centimeter

During the second year of the operation of this regulation not more than 100 000 bacteria (colonies) per cubic centimeter

During the third year and following of the operation of this regulation not more than 50 000 bacteria (colonies) per cubic centimeter

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CREAM

ART 87 By cream is meant the rich, fatty product separated from the milk by mechanical processes or under a cool temperature The cream must contain not less than 20 per cent of the pure milk fat not more than 0 2 per cent acid, expressed in lactic acid, and its bacterial content must not exceed 200,000 bacteria (colonies) per cubic centimeter

ART 88 For the elaboration of cream any one of the kinds of milk classified in this regulation may be used, but when "raw milk" is used the cream must be pasteurized

ART 89 The building in which a creamery is installed shall consist at least of rooms for receiving the milk, for the elaboration of cream, and for the cleansing and sterilization of the containers and utensils

When the creamery is installed as an annex to any milk industry and its products, the room where the milk is purified and sterilized may be a room used in common but must be set apart when intended for the elaboration of the cream in case the creamery is not installed as an annex of a pasteurization plant

ART 90 The construction conditions for buildings and quarters for the installation of a creamery, for sterilization and washing of containers and utensils, as well as for cream elaboration, bottling, capping, recapping, storing, and transportation, shall be the same as stipulated for the pasteurization plants

ART 91 On the outer covers or labels of the cream containers shall be indicated the address of the creamery and the name of the proprietor, the percentage of fat contained in the cream may likewise be indicated

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BUTTER

ART. 95. Butter is the fatty product extracted from the milk or from the cream of the milk. Butter prepared from the milk of other animals can be sold only if it bears the proper description.

Butter shall contain not less than 80 per cent fat nor more than 15 per cent water; it may contain small proportions of other constituent elements of the milk; sodium chloride may be added and it may be colored with coloring substances authorized to that effect. Its Reichart Meisel index may not be less than 24, and its oleic acid content shall not exceed 3 per cent.

ART. 96. For the elaboration of butter only "certified raw milk" or pasteurized milk or cream shall be used.

ART. 97. Reelaboration of rancid butter is permitted; by this operation we understand aeration and fusion and mixing of butter with milk to which sodium bicarbonate is added and subsequently washing with milk or water.

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ART. 100. Butter must be packed in appropriate containers to insure its proper preservation. When butter is not packed in hermetically sealed containers it must be stored in a cool place up to the time of shipping.

ART. 101. On the butter containers shall be marked the address of the factory and the name of the owner. When butter has been reelaborated that fact should be indicated in legible letters.

CHEESE

ART. 102. Cheese is the product separated from the milk, from cream, or from the totally or partially skimmed milk, coagulated by means of a curdle or proper acidification, the coagulated product thus obtained being subjected to an appropriate treatment for each kind of cheese to be elaborated.

Sodium chloride may be added to the cheese in a proportion approximate to the necessities of manufacture; other harmless substances may likewise be added; cheese may be colored with coloring substances authorized to that effect by the ministry of Sanitation and Social Welfare.

Elaboration of emulsion cheeses by means of acids and pure edible fats is permissible; elaboration of cheeses to which are added pure edible vegetable substances is also permissible.

Any cheese of other than normal origin must be sold with a description indicative to that effect and must be accompanied by the word "Imitado" or "Estilo".

ART. 103. In the elaboration of cheese any one of the kinds of milk classified by this regulation, cream and skimmed or partly skimmed milk, may be used.

When the bacterial content of the milk does not meet the requirements for the kinds of milk hereinbefore specified, only boiled milk may be used for the elaboration of the cheese.

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EVAPORATED MILK

ART. 108. Evaporated milk is the product obtained from the evaporation of part of the natural water of whole milk, skimmed or partly skimmed.

When the milk used is whole milk, the product obtained shall contain not less than 25 per cent fat of its total extract, and the total extract shall not be less than 25 per cent of the milk.

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CONDENSED MILK

ART. 111. Condensed milk is the product obtained by the evaporation of part of the natural water of whole milk, skimmed or partly skimmed milk, to which has been added cane sugar.

When the milk used is whole milk, the product obtained shall contain not less than 8 per cent of fat and 28 per cent of the normal solid constituents of the milk.

URUGUAY

Connie R Herron, Assistant Trade Commissioner, Montevideo

The Oriental Republic of Uruguay, as it is officially named, is the smallest of the South American States With an area of 186,926 square kilometers (72,172 square miles), it is slightly larger than the six States constituting the New England group of the United States Uruguay is located as far south of the Equator as North Carolina is north of it and lies approximately 1,000 miles east of New York City

The surface of Uruguay is largely an undulating plain In the north and northwest there are a number of low hills, none of which reach a height of 2,000 feet These hills are covered with light stands of timber, but the broad intervening valleys are grass covered and serve as excellent grazing lands. The remainder of Uruguay, except for the Cuchilla Durazno in the central portion, is open, rolling, grass-covered prairie land, devoted almost exclusively to the raising of livestock In the southwest, where the land has been built up by alluvial deposits and is extremely fertile, dairying and agriculture have reached their greatest development

CLIMATE AND RAINFALL

The location of Uruguay gives it a temperate climate without prolonged periods of extreme heat or cold The greater part of the country is swept most of the year by breezes from the Atlantic Ocean or from the broad expanse of the River Plate Along the Brazilian frontier the climate borders on the subtropical, and during the summer months this section of the country experiences periods of warm weather In the uplands frosts sometimes occur Snow is unknown except in Montevideo and vicinity, where it has fallen on two or three occasions in the last two decades.

There have been periods of drought, but normally rainfall averages 40 to 43 inches annually, thus providing abundant moisture for agriculture and for the raising of cattle and sheep on indigenous grasses, which in Uruguay constitute the principal forage Little attention has been given to the production of forage, principally because native pastures are good Rain falls throughout every month of the year, but the periods of heaviest precipitation are May, June, August, and September. The seasons are the reverse of those in the United States

POPULATION

The total population of Uruguay on December 31, 1927, was 1,762,451 The country is thus not densely populated, there being slightly more than 9 inhabitants to the square kilometer, or 23 to the square mile, which is approximately the density of the population of the State of Kansas.

The most heavily populated area is the Department of Montevideo, with 447,984 inhabitants Aside from Montevideo there are no cities in the Republic which have a population exceeding 30,000.

DAIRY INDUSTRY

Dairying has been overlooked as one of the principal sources of possible wealth to Uruguay, despite the fact that cattle raising is the chief occupation and that the country's exports consist largely of animal products On many of the farms throughout the country, however not even enough milk is produced to satisfy the needs of the workers, while on others there is an excess which is not utilized in a commercial way

There is a well-defined dairying section which comprises the Departments of Colonia, San Jose, Maldonado, and Canelones The production in Canelones and San Jose is destined for consumption in Montevideo, and the production in Colonia and Maldonado is separated for cream or made into cheese Of the dairies in this area few may be called strictly modern Separators, clarifiers, testers, pasteurizers, bottle-washing machines, and other modern equipment have never been used to any extent, nor do the producers manifest any great interest in their use

At the present time the dairying industry may be said to be undergoing a change, which, however, is still in its infancy A great amount of propaganda is being circulated in behalf of the industry, and one of the principal banks has made a study of market conditions and issued several leaflets in an effort to interest landowners in devoting their time and capital to dairying The Government also has been advocating the development of the industry and has passed certain laws destined to be beneficial both to the producer and to the consumer All the newspapers are carrying columns on the sanitary handling of milk and milk products

MILK PLANTS IN MONTEVIDEO

One of the most important steps toward modernization of factory equipment and distribution methods centers in the organization known as the Cooperativa de Lecherias, S. A This organization comprises almost all the large producers, some 200 in number, in and around Montevideo The Cooperativa de Lecherias is constructing a strictly modern plant for the clarification, pasteurization, and distribution of milk This plant will also be equipped to make cheese, casein, and butter The plant equipment has been purchased from the United States (bottles, bottle washers, caps, compressors, etc), Denmark (pasteurizing equipment, churns, butter starters, glass tanks, etc), Germany (boilers), and Switzerland (refrigeration, compressors, etc).

Glass bottles are to be used exclusively This is almost an innovation for Uruguay, since heretofore 90 per cent of the milk has been delivered in aluminum containers. Paper caps with appropriate design and printing (including the date of bottling) and modern American-made bottle washers will also be used

The plant will have a capacity of 150,000 to 180,000 liters daily, and all the milk received will be pasteurized and clarified in much the same way as in the United States The milk will be held at 63° C for one-half hour and then cooled over coils There is considerable agitation by the press for the compulsory pasteurization of milk destined for use in Montevideo

The Lecherias Central, at present Montevideo's most complete plant, is contemplating the erection of a 5-story modern plant The present plant is equipped largely with German machinery, but uses some American-made machines, namely, ice-cream machinery, compressors, and a milk condenser

In addition to the plants mentioned there are numerous small plants, some of which use a few modern devices. The majority, however, utilize only such equipment as is necessary to place their product on the market A fair number still drive their cows through the streets and sell the milk direct from the cow

MILK PRODUCTION

There are no statistics available as to the amount of milk produced in Uruguay, however, it has been reliably estimated that upward of 180,000 liters of milk are brought into Montevideo daily, over 90 per cent of which is consumed as fluid milk The largest single distributor is the Lecheria Central, which sells from 15,000 to 20,000 liters daily The entire production of this plant is clarified and pasteurized This company may be said to be the leader in the sanitary supervision of its products A well-equipped traveling laboratory is maintained which visits the dairy farms regularly and tests the cows for disease Each can of milk delivered to the plant is also tested and examined and divided into four grades Only the first or best grade is sold to the consumer The average is made into powdered milk, condensed milk, or casein

The Cooperativa de Lecherias plans to process approximately 120,000 liters of milk daily, according to the statement of its technical engineer The milk produced by the dairy farmers is to be tuberculin tested and supervised for sanitary production by the central plant, and milk brought into the plant is to be clarified, pasteurized, and bottled under sanitary conditions

Undoubtedly the smaller distributors and producers, in order to keep their trade will adopt modern machinery and equipment and will attempt to produce milk that will be equally as sanitary as that sold by the larger companies It should be kept in mind that some of these small dealers catering to the better class of trade are now distributing milk produced under excellent sanitary conditions

The milk produced for distribution in Montevideo comes largely from the Departments of San Jose and Canelones The center of the dairy industry is in the Departments of Colonia and Maldonado, but neither has been tapped as a source of milk supply for Montevideo because of lack of transportation facilities to the producing districts and lack of refrigeration by the railways All the milk produced in these two Departments is made into cheese These two Departments supply practically the entire demand of the Republic for cheese A comparatively small quantity of cream is used for butter making

Although there are no figures available as to the amount of milk produced in the Departments of San Jose and Canelones, an idea of the scope of the industry is shown by the fact that there are more than 50 large cheese producers who milk 100 to 150 cows, several who milk over 1,000, and one producer who milks between 4,500 and 5,000 cows

The herds in the Department of Maldonado are somewhat smaller, being composed of 50 to 100 cows A small quantity of milk is produced for cheese making in the Department of Rivera, but it is inconsequential compared with that in the Departments mentioned in the preceeding paragraph

The Lecheria Central, the largest single company now distributing milk in Montevideo, receives its supply of raw milk at the central plant by rail and truck shipment After the milk has been clarified and pasteurized it is distributed by horse-drawn wagons (43 in number), by truck, and by motor cycles, the latter being 3-wheeled vehicles of German make This company also maintains 15 retail stores throughout the city where milk is stored for distribution and delivery

It is estimated that in the city there are 30 to 40 dairies, which make deliveries direct to the consumer There are several proprietors who maintain their cows in the sections where they distribute, but these are of little importance, since they are patronized by select groups A number of milk dealers stable their cows and sell milk direct from the cow

In the business districts there are a large number of what are termed here as lecherias, or dairies, which sell milk from a bar direct to the consumer These establishments are patronized extensively and constitute one of the principal means of distribution in this city Very few of these dairy shops sell milk in bottles, nor is modern machinery required except for refrigeration These establishments are supervised by the sanitary authorities and are required by law to be finished with white materials, including the fixtures

Some cafés are important as distributors of milk, but their sales are confined almost exclusively to milk for use in coffee in the morning or for tea in the afternoon The milk so used is always boiled

CREAM AND BUTTER PRODUCTION

Cream for direct consumption is not an important dairy item, but cream for butter making is an item of importance, and large quantities are received daily in Montevideo from surrounding territory There are no statistics available as to the amount produced, but it is estimated that upward of 15,000 liters reach the city daily Uruguay does not produce sufficient butter for local consumption, but must import approximately 50,000 kilos annually from Argentina

Of modern dairy equipment, the cream separator is probably the most extensively used Most of these machines come from Europe and range in capacity from 75 to 400 liters an hour and in price from 18 to 139 pesos

Butter starters, pasteurizers, and ripeners are not used The Lecheria Central (Kasdorf Productos Lacteos) churns about 150 kilos of butter daily There are several creameries in Montevideo which receive cream from Colonia Suizo, Rosario, San Jose, Canelones, Pando, Maldonado, and Colonia and specialize in the manufacture of butter for sale in Montevideo

A considerable portion of Montevideo's butter supply comes from the Department of Colonia, where there is a settlement of Swiss and Germans who are engaged in the manufacture of dairy products

CHEESE PRODUCTION

There are no cheese factories, in the strict sense of the word, in Uruguay. All the cheese produced in the country is made on the farm where the milk is produced Colonia Suiza, Colonia, and

Maldonado are the centers of this industry, and practically all of Uruguay's supply originates in the territory surrounding these cities

The equipment in most cases consists of a vat and a mold Most of the cheese producers are content to use their supply of milk in making 3 or 4 and up to 25 cheeses a day Weekly shipments total about 15,000 kilos from Colonia, an equal amount from Colonia Suiza, and 1,000 kilos from Maldonado Smaller quantities are shipped from Rosario, San Jose, Baker, and other cities along the various railroad lines A fair quantity is handled by truck

MANUFACTURE OF BY-PRODUCTS

Buttermilk (Bulgarian style) is produced by the Lecheria Central Buttermilk, or the residue after churning, is in most cases fed to hogs or other domestic animals Skim milk is usually fed to calves, a small quantity is made into powdered skim milk, the amount of the latter depending on the surplus The Lecheria Central makes a small amount of powdered milk and utilizes the poorer grades and waste milk for making casein

The new plant of the Cooperativas de Lecherias will have excellent facilities for making casein, and all their surplus will be used for this purpose

ICE-CREAM PRODUCTION

The Lecheria Central (Kasdorf Productos Lacteos) is the largest single manufacturer of ice cream in Montevido, supplying about 75 per cent of the demand There are several small manufacturers who produce ice cream and ice-cream specialties, but they are relatively unimportant Many of the dairy bars make their own cream

The Lecheria Central uses American-made ice-cream machinery exclusively The manufacturers of ice-cream specialties also use American machinery to a certain extent Dairy bars and so-called ice-cream parlors use only small freezers and prepare their product on the premises Ice-cream powder is not produced or used

Ice-cream and ice-cream specialty manufacturers do not operate during the winter months Montevideo is a tourist resort with excellent beaches and playgrounds, and it is from these places that the ice-cream manufacturers secure the greatest demand Winter production is inconsequential The Kasdorf plant closes down for most of that period

Ice cream is delivered in refrigerated trucks to the dealer and consumers The ice-cream specialty manufacturers sell largely through itinerant venders who walk through the streets, along the beaches, and among the playgrounds, carrying a small refrigerated bucket in which dainties are kept cool

Cafés, dairy bars, and hotels use electric refrigerators almost exclusively, most of which are well-known American makes

FIELD FOR DAIRY EQUIPMENT

From the foregoing discussion it will be seen that there is a limited market in Uruguay for dairy equipment The Cooperativa de Lecherias, which will be the largest single operator in Montevideo, has already placed orders for complete equipment, some of which has been purchased in the United States American manufacturers have made arrangements to supply such items as bottle caps, glass bottles, and bottle-washing brushes

The Lecheria Central expects to build and equip a new plant in the near future and will probably be in the market for some new equipment The concern, although of German origin, is well acquainted with American machinery and will, no doubt, purchase some items in the United States This concern has been supplied with literature and catalogues describing American equipment Individual manufacturers might effectively place their advertising literature in the hands of the management of this company

As soon as the larger companies have made their new installations and are selling milk under supervised sanitary conditions the small dairymen and milk producers will have to install sanitary equipment to meet the requirements of the consumers It is believed, therefore, that this class represents the best field for sales-promotion effort The equipment needed, however, will in most cases be for handling small quantities of milk and will comprise such items as separators, clarifiers, bottlers, hand cappers, bottle washers (low), steaming and purifying equipment, small churns, cartons for butter, bottles, and sundry items.

An innovation for Uruguay will be the packing of butter in cartons. Both the Cooperativa de Lecherias and the Lecheria Central will pack butter in ¼, ½, and 1 kilo cartons, and the required cartons are being imported from the United States Some of the smaller dairies may be induced to follow the lead of the larger companies.

There are several companies making ice cream and ice-cream specialties These are fully equipped at the present time, but might be interested in improved machinery.

There is not likely to be any appreciable demand for cheese-making equipment until the industry has reached the factory stage

Cream separators are being used extensively in the dairying districts, and farmers are beginning to find them profitable Very few American machines have been imported, principally because they have never been properly introduced

There are numerous agents in Montevideo dealing in agricultural equipment, and most of them handle a small assortment of dairy equipment Some of these dealers might be induced to carry an American line. The names of these dealers, also a list of creameries in Montevideo, will be made available to interested American suppliers of dairy equipment upon application to the Commercial Intelligence Division, Bureau of Foreign and Domestic Commerce

SANITARY REGULATIONS

An extract of portions of the regulations (approved June 15, 1927) governing the production and sale of milk in Montevideo follows

ARTICLE 1 A year and a half after these regulations have been approved (viz, after December 15, 1928) the sale of only the following grades of milk shall be permitted in the city of Montevideo

(a) ' Inspected,' produced in and outside of the city

(b) "Inspected,' produced in establishments situated in the rural districts of this Department

(c) "Pasteurized," produced in establishments situated beyond the boundaries of the Department, or within it when they do not fulfill the conditions required for the sale of "inspected" milk

Art 2 A year and half after these regulations are approved all cream brought into the Department of Montevideo, for use as food and for treatment, must be pasteurized in apparatus equipped with automatic registers or indicators, as prescribed in clause (*e*) of article 7

Art 3 City dairies must comply with all regulations in force which affect them, and must also observe the provisions regarding "containers"

Art 4 Rural dairies selling "inspected" milk shall be subject to monthly veterinary inspections, and the tuberculin test shall be made twice a year and every animal reacting thereto must be eliminated Such establishments must have a milking and a refrigerating room

Art 7 Pasteurization can be effected only in shops each of which receives at least 20,000 liters of milk daily and has a laboratory directed by a technician named by the municipality and paid for by the establishment Said laboratory shall analyze daily a sample of each product, in accordance with the formula drawn up by the health administration

Art 8 The plants must be so arranged and equipped as to permit the product to be analyzed, purified, pasteurized by the usual method, poured into sterilized and hermetically sealed jars or bottles, cooled, and kept at the required temperature

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Art 10 Pasteurized milk must be delivered to the customer within the 24 hours following its pasteurization

Art 11 Pasteurizing apparatus shall be equipped with automatic registers or indicators showing the temperature and the time the milk has been subjected to pasteurization and its temperature after being cooled

Art 12 Containers of pasteurized milk must bear a visible tag with the word "Pasteurized," the day of the week when it was pasteurized, and the name of the person, firm, or corporation effecting the same

Art 13 The composition of the milk on leaving the pasteurizing plants of establishments producing "inspected" milk and of city dairies must be as follows Fatty matter, 2 7 per cent in September, October, and November, 3 2 per cent during the other months of the year , solids (not fatty), 8 5 per cent the year round

Art 14 The following provisions shall govern the use of containers

(*a*) Containers to be used for transportation and storage of milk and cream shall have their corners rounded and must be of inoxidizable material, with a concave bottom, no cracks, a wide mouth, and a top which can be hermetically sealed

(*b*) In the sale and distribution of milk, either at the home, by itinerant peddler, or at the store, the following types of containers may be used

1 Containers holding small quantities and sealed, or having a guaranteed top or stopper made of glass or other material not affected by the contents or by action of light or air, authorized by the competent office

2 Tanks of tin-plated brass, or other material not affected by the contents, having tops equipped by the municipal authorities with a guaranteed seal, which may not be taken off or destroyed without their consent The tank shall be furnished with its corresponding faucet and a mixer inside, which shall be set in motion each time before milk is drawn off

3 Each type of container or tank used in distributing milk must first be examined by the qualified municipal authority, who shall issue a permit for its use, provided said type is shown to be safe and hygienic Persons who sell milk in containers holding small quantities may carry it from the plant to the places of storage in transportation containers sealed by the municipal authorities The provisions of this article do not govern city dairies, but they must use material not affected by the contents and supplied with tops

(*c*) The containers, measures, and other utensils used in storing, transporting, and selling milk and cream must be perfectly clean The return of empty containers from the dealer to the producer is prohibited unless they have previously been sterilized by steam and dried

VENEZUELA

Frederic D Grab, Assistant Trade Commissioner, Caracas

No statistics as to either production or consumption of milk or its products are available in Venezuela, and only the roughest sort of estimate is possible The estimates of persons who are likely to be best informed concerning the consumption of milk in Caracas vary between 30,000 and 45,000 liters as to the probable amount of milk consumed daily in the Federal District Taking the lower figure as the more nearly accurate this would make the total milk consumption for the district about 1 liter a day for every four persons At this rate the whole population of the Republic would consume approximately 750,000 liters of milk a day Including goats' milk, which is widely used in the rural districts, this figure may not be far out of the way

SANITARY SUPERVISION

The health departments of the principal cities inspect milk that is destined for delivery to their inhabitants, taking samples at random from the milk venders who come into the cities and analyzing them, principally with a view to determining whether adulteration with water is being practiced If this is detected, the guilty seller is fined heavily Aside from endeavoring to prevent adulteration the principal concern of the sanitary inspectors is to insure a reasonable degree of cleanliness in the milk containers and implements used in dispensing

The only milk product that is made on a large scale is butter, which is manufactured at the Lactuario de Maracay, a creamery located in the city of Maracay As this plant is a semigovernmental institution, the butter is considered satisfactory if it is passed by the inspectors who are employed by the lactuario Cheese is usually produced by small farmers and is inspected by sanitary authorities in the cities at the places where it is sold

USES OF MILK

Butter and cheese—No estimate, even a rough one, can be made of the percentage of milk which is used for direct consumption, as compared with that which goes into the making of butter and cheese

The Lactuario de Maracay is the only institution in Venezuela that is engaged in the manufacture of either butter or cheese in commercial quantities This creamery produces an average of 368 kilos of butter a day, according to its officials Farmers throughout the country produce enough butter for their own use but do not sell it in the cities Caracas and Maracaibo offer comparatively important markets for butter imported from abroad, especially from Denmark and (of gradually increasing importance in this connection) the United States

Concerning cheese precisely the reverse situation prevails The production of cheese at the Lactuario de Maracay is negligible but, according to the estimate of the Caracas Chamber of Commerce, Venezuelan production of cheese amounts to about 14,000 kilos daily Most of it is made on the farms of the llanos, the great plains region of Venezuela, although farmers in all parts of the country manufacture more or less cheese, if only enough for their own use The white native cheese is one of the most important items of diet for a great part of the Venezuelan population

Other milk products.—Skim milk, buttermilk, and whey are usually thrown away Such quantities as may be used are insignificant, according to the best information available in Caracas No condensed, evaporated, or powdered milk and no ice-cream powder is produced As a rule ice cream is made in the home, hotel, or restaurant where it is consumed The first ice-cream plant in Venezuela was recently erected in Maracaibo It is too early to determine what success will be attained by this pioneer establishment

DISTRIBUTION

The producers themselves deliver milk to the consumers in the cities of Venezuela The usual method of conveyance is by means of horses or donkeys with large tin cans carried on their backs, one on each side In some cases 1-ton motor trucks or horse-drawn wagons are used The size of the cans in which the milk is carried varies from approximately 2 to 12 gallons

Practically no milk is bottled in Venezuela The usual practice is for the vender to stop at the door of a consumer and ladle out the quantity desired from the cans which are carried on the back of the animal he is riding Truck and wagon deliveries are made only to large consumers, such as hotels and restaurants

Pasteurization is not practiced in Venezuela, and it is customary among most Venezuelans and foreigners who are careful in matters of sanitation to boil the milk used in their homes The drinking of milk as a beverage is unknown.

The butter produced by the Lactuario de Maracay is packed in tins varying in capacity from ½ pound to 5 pounds The Lactuario packs a total of 46 kilos of its daily production in paper packages of ½ pound (¼ kilo) each

Recently shops have been established for the sale of ice cream in the down-town section of Caracas, an especially popular form being a confection consisting of a bar of ice cream frozen on a stick and eaten as one eats a lollipop There are also itinerant venders of ice cream who sell from pushcarts and keep their wares in the freezers in which it was made Aside from these pushcarts, there is no ice-cream delivery equipment used in Venezuela

FIELD FOR AMERICAN EQUIPMENT

The Lactuario de Maracay is the only institution in Venezuela that might offer a prospect for the sale of American machinery This was established by President Gomez in 1917, and it is unlikely that anyone else would attempt to compete with the Government in this sort of undertaking The only possibility for increasing sales of machinery at this time would seem to be through interesting the Government in expanding its present equipment or in further promoting the use of milk products

Milk distribution is comparatively primitive in Venezuela, and the use of milk products is almost in its infancy While the present situation may not seem especially encouraging from the standpoint of manufacturers of dairy supplies and equipment, it is likely that with the increasing prosperity of the Republic and its rising standard of living an enterprising manufacturer might, by careful and patient sales effort, create a market for his equipment

Distributors of American electric refrigerators have recently been meeting increased success in selling such equipment to keepers of restaurants, cafés, and stores engaged in selling ice cream

MEXICO

George Wythe, Acting Commercial Attache, Mexico City

Mexicans have never been great consumers of milk The cow was unknown in Mexico before the advent of the Spanish conquerors in the sixteenth century The Indian element of the population, which is numerically the larger part, has retained its ancient habits in many ways, including a lack of appreciation of milk The Spanish settlers introduced cattle shortly after the conquest, but throughout the colonial period cattle were valued more for their hides, horns, and tallow or for their fighting qualities in a bull ring than as meat or milk However, the native population has long been accustomed to the consumption of cheese, made principally of goats' milk Several local varieties of cheese are produced in Mexico

MILK PRODUCTION

There are no statistics showing the production or consumption of milk or milk products in Mexico, but the consumption of fresh milk for the entire Republic of Mexico may be roughly estimated at 750,000 liters during the summer season The consumption in Mexico City may be fairly closely estimated at 220,000 to 240,000 liters daily, during the winter it falls below this total The second most important center for the consumption of milk in Mexico is Guadalajara, which, with the surrounding area, is estimated to consume 100,000 liters daily during the rainy season (that is, from May to November) and around 30,000 liters during the remainder of the year The consumption at Puebla, the third largest city, is estimated at 35,000 liters daily In the northern States of Mexico goats' milk and cheese are consumed in considerable quantities The market for milk at Monterey and vicinity is increasing. Very little fresh milk is consumed at Tampico, although there is a substantial market there for condensed milk and powdered milk

SANITARY SUPERVISION

There is practically no sanitary supervision of milk and milk products except in the Federal District, which includes Mexico City and its suburbs Regulations of the Public Health Department covering the transportation and sale of milk were officially promulgated in the Diario Oficial of May 8, 1925 These regulations provide that only two classes of milk can be sold in the Federal District, namely, certified milk and pasteurized milk Milk is classified as " certified " when the stable at which it is produced and the distributing organization come up to a certain sanitary standard All milk not classified as certified must be pasteurized before sale It is estimated that about 35,000 liters of so-called "certified" milk are sold daily in Mexico City

USES OF MILK

Fluid milk—The dairies find it more profitable to sell milk in a fluid form and do not convert it into butter or other products except when they have a surplus which can not be disposed of at a satisfactory price At the present time the daily surplus at Mexico City which is turned into butter is estimated at about 20,000 liters No data are available for other parts of Mexico, but the proportion probably is roughly the same However, it must be noted that this is a fluctuating factor

Butter production—Very little butter is produced on farms in Mexico, since the Mexicans themselves rarely eat butter A little butter produced on stock farms in the Valley of Toluca is bought up by dealers who supply the Mexico City market The market for butter in Mexico is confined for the most part to the foreign population, or to those Mexicans who have acquired a taste for butter by residence abroad A large part of the market for butter is supplied by imports, principally from the United States During 1926 Mexico's total imports of butter amounted to 1,372,875 pounds, valued at 1,063,803 pesos The daily production of butter in Mexico City is from 1,500 to 1,800 pounds In addition, Mexico City consumes about 2,000 pounds of native butter from Toluca, Guadalajara, and Monterrey

Cheese production—One or two of the largest distributors of milk in Mexico City sell cream to manufacturers of ice cream and turn most of their skim milk into a skim-milk cheese, which is sold through native bazaars The largest producer estimates its production of skim-milk cheese at 1 ton per day A large amount of skim-milk cheese is also produced at Toluca This cheese must be consumed in the fresh state and is sold principally at Mexico City Other local cheeses are produced in a primitive way on farms in various sections of Mexico Among the principal cheese-producing regions are the States of Guanajuato, Jalisco, Mexico, and Oaxaca

Other milk products—Condensed, evaporated, and powdered milk and ice-cream powder are not produced in Mexico at this time, but one of the largest distributors of milk in Mexico City (Productores de Leche, S R de C A) is planning to install machinery for producing powdered milk Practically no skim milk, buttermilk, or whey is fed to stock Except for the use of skim milk in the manufacture of cheese there is little use for the by-products

DISTRIBUTION

Fluid milk—From the farm or producer to pasteurizing plants or distribution centers milk is delivered in tin cans American cans are preferred on account of their superior quality, although there is considerable complaint that American manufacturers of cans do not follow the metric system, which is used in Mexico The American cans contain 37 liters, which is an odd number, and for this reason the 40-liter German and Danish cans have a good sale It is believed that if American manufacturers could supply, in metric units, cans of the same quality as they are now manufacturing that the market might be substantially increased

About 70 per cent of the milk sold in Mexico City is distributed from milk shops and the rest is sold by delivery All milk, whether handled through milk shops or by delivery, must be sold in capped bottles The sale of American bottles in Mexico City has practically ceased, since the authorities require the use of metric measures A factory at Monterrey is now supplying a large part of the bottles used

Both the flash and holding systems of pasteurization are used, although the latter is more generally employed Equipment from the United States, Denmark, and Germany finds sale

Butter—Very little native butter is packed in cartons. By far the larger part of the butter is sold in bulk to dealers, who in turn retail it to their customers Some native butter is sold in kilo packages wrapped in paper

Ice cream.—Ice cream is not manufactured in Mexico by milk producers or distributors, but is made by restaurants and confectionary dealers Most of it is sold on the premises where produced, but some is sold either in freezers or in cartons

Progress in methods—The progress that has been made during the last five years in factory equipment and distribution methods has been largely the result of requirements by the Public Health Department Public health authorities in Mexico are fairly well acquainted with American methods The regulations of the health department are being tightened up as rapidly as circumstances permit It is probable that the sale of butter in bulk as at present practiced will eventually be prohibited As previously stated, one large distributor is now planning to install machinery for manufacturing powdered milk This company is a cooperative organizataion of large producers and is financed by the National Bank of Agricultural Credit

PUBLICATIONS DEALING WITH DAIRY INDUSTRY

Very little printed matter on the dairy industry is available in Mexico The sanitary requirements governing the industry were published in the Diario Oficial of May 8, 1925 The Public Health Department has reprinted these regulations in a small pamphlet which is on sale by that department There are practically no technical journals devoting any space to the dairy industry. The Department of Agriculture publishes a weekly paper called La Tierra, which contains some information on dairying methods, but its circulation is small

FACTORY EQUIPMENT

The use of factory equipment in the dairy industry in Mexico dates from about 1924, when a large dairy owned by American and Canadian capital installed pasteurizing equipment In 1925 the promulgation of a law requiring all milk not conforming to certain standards to be pasteurized before sale forced a number of other companies to install pasteurizing plants. It is estimated that there are now at least 30 pasteurizing plants in Mexico City, but only 2 of these have large installations There is one pasteurizing plant at Puebla, it is said, and one in the northern part of the Republic. One company in Mexico City has presses and tanks imported from the United States for manufacturing cheese However, most of the cheese-manufacturing equipment used is of a primitive type and is made in the country

Despite the slight progress to date in the handling of milk and milk products, it is believed that Mexico is on the eve of considerable development along such lines and that fair sales of such equipment can be expected during the next few years However, it must be kept in mind that the market will not become important any time soon, since the market for milk and butter is limited

A list of Mexican importers and dealers in dairy equipment and producers of milk products who might be approached by American suppliers may be secured upon application to the Commercial Intelligence Division of the Bureau of Foreign and Domestic Commerce, Washington, D C.

GUATEMALA

Joe D Walstrom, Office of Commercial Attache, Guatemala City

In considering the market for dairy equipment in Guatemala it must be borne in mind that out of a total population of 2,500,000 a great majority is composed of Indians who do not patronize dairies. There are very few dairy plants of any size in Guatemala; most of the urban population is supplied by farms or small dairies which can not be considered as prospective customers for modern equipment and supplies The Guatemalan dairy industry has made little progress, and until regulations are established requiring pure milk there will be no marked improvement At the present time the single dairy which sells pasteurized milk seems adequate to supply the demand

MILK PRODUCTION

While the number of milk cows has apparently declined, statistics published by the Guatemala Department of Agriculture show that the production of milk for the entire Republic in 1926–27 was larger than in the preceding year These statistics state the number of milk cows to be 34 085 in 1924, 28,414 in 1925–26, and 27,833 in 1926–27; milk production was 10,084,241 liters in 1924, 10,001,970 in 1925–26, and 10,297,506 in 1926–27 An American liquid quart is 0 946 liter While the liter is the standard of measurement, most dairies use the quart bottle

USE OF MILK

Fluid milk—It is estimated that one-half of the milk produced is used for direct consumption as fluid milk Most of the remainder is used in the making of butter and cheese

Butter—With the exception of the relatively small output from two factories, all butter produced in Guatemala is made on farms and plantations Production of butter amounted to 250,480 pounds in 1926–27, as compared with 256,900 in 1924 and 271,400 in 1925–26 Imports of butter (95 per cent of which comes from the United States) amounted to 116,547 pounds in 1927, valued at $52,856

Cheese—All native cheese also comes from farms and plantations Domestic production amounted to 1,489,126 pounds in 1926–27, compared with 3,614,500 pounds in 1924 and 2,622,500 in 1925–26 While total imports declined, the United States increased its percentage of the total supplying approximately 36 per cent in 1925, 45 per cent in 1926, and 55 per cent in 1927 Guatemalan cheese is prepared in an unusual manner When a farm can not sell its milk because of remoteness from a city or town, the milk is allowed to decompose It is then put into molds for a week or 10 days, and the final product is a hard, white cheese, for which there is a good demand in the towns and cities

Other milk products.—No condensed, evaporated, or powdered milk is manufactured locally The imports of canned milk of all kinds amounted to $24,657 in 1926 and $30,639 in 1927, the United States supplying the greater part Such canned milk has its greatest market among the foreign population and the higher class of natives

There is a project on foot, however, which contemplates the establishment of a milk-evaporation plant in the western part of Guatemala This plant would make use of the milk produced in that section and now utilized for native cheese

No ice-cream powder is produced locally A negligible quantity of skim milk or buttermilk is fed to calves or range stock or used for by-products

DISTRIBUTION

Fluid milk.—Fluid milk is generally sold direct from the producer to the consumer So far as is known, there are only three dairies which make a practice of acting as distributors, and of these only one is conducted on a large scale This dairy collects milk from farms and plantations in a radius of 30 to 35 miles, and depends largely on automobile trucks for transporting the milk to Guatemala City The farms or plantations in close proximity to cities and towns also have regular customers in the cities to whom they supply milk

Fifty per cent of the milk sold in Guatemala City is bottled at the dairy or farm which supplies it, the rest is sold to customers who come to the dairy or farm and buy milk by the glass There are also several herds of goats which are driven from house to house, but the success of this undertaking rests largely on its novelty, and no serious competition is offered The milk which is sold from door to door to regular customers is delivered by wagons or carts This method involves the use of very little equipment

There are very few dairies of any importance in Guatemala equipped with pasteurizers There is an ice-cream factory in Guatemala, however, which is also equipped with a pasteurizer Such pasteurizers as are in use are of American manufacture

Butter.—Approximately one-third of the butter consumed is imported This butter, packed in hermetically sealed tins, is sold by grocery stores and is also handled by one or two dairies

Very little native butter is carried by the larger grocery stores; as a general rule it is sold in small shops or houses Such butter is usually prepared for the trade in pound and half-pound sizes, wrapped in waxed paper, and inclosed in cardboard containers

Butter produced locally does not contain any salt, as salted butter attracts too much moisture For this reason and also because of the fact that it is no more expensive, the imported butter in tins is steadily increasing in popularity

Ice cream.—Prior to the establishment of the present ice-cream factory in Guatemala City the local "ice cream" was a product which resembled frozen milk, sweetened and flavored Ice-cream containers which are standard in the United States are used A refrigerating room keeps the ice cream cold at the plant, while modern containers with cork insulation have recently been purchased for distributing the ice cream from the plant to the dealer Smaller electric refrigerating systems are used to some extent by the dealers who retail ice cream

SANITARY SUPERVISION

The sanitary regulations pertaining to milk and its products can not be called strict There is an inspector who tests milk for its water content and also sees that the stables are kept clean, but his duties extend no further There are not more than two dairies which are equipped with pasteurizers, these dairies are patronized by the foreign colony, the hospitals, and the leading hotels Many of the other dairies, especially the smaller ones, sell at least half of their output by the glass direct from the stable or, as it is termed, "at the foot of the cow" Little or no care is taken of the cow, and the glasses in which the milk is sold are probably never sterilized Unfortunately, however, the less informed natives think that this method is the only one which insures pure milk

It is proposed to establish a department of health, under whose supervision a new sanitary code would be formulated Certain attempts would therefore be made to improve the quality of the milk, but it will probably be a long time before milk is tested for its bacteria content It is said that some time ago a decree was passed prohibiting the sale of milk "at the foot of the cow," but the public disapproval was so strong that the decree was immediately repealed The average native becomes immune from diseases which are caused by unsanitary milk or water, and consequently there is very little public opinion favoring reform in this respect

POSSIBILITIES FOR SALE OF AMERICAN EQUIPMENT

As will be seen from the foregoing discussion, the dairy industry in Guatemala, with very few exceptions, has made little progress It has been pointed out that there is still a general indifference as to whether sanitary precautions are taken regarding the supply of milk At the present time the local dairies get along with as little equipment as possible

Most of the milk cans used are made in Germany They are not so expensive as the American product, and another point in their favor is that the top is bolted on in such a way that it does not come off when the can is accidentally turned over No separate classification for dairy equipment is provided for in the Guatemalan import statistics, and it is therefore impossible to indicate the imports of such equipment from the various countries

The leading dairy in Guatemala selling pasteurized milk is conducted by an American The same is true of the only ice-cream plant in Guatemala Both have been established only within the last few years These firms employ modern methods, utilize American equipment almost entirely, and enjoy a good business Following their example, it is possible that several of the larger dairies will be in the market for modern equipment, but it is not likely that this will happen until a board of health is established which will raise the hygienic standards of the dairy industry

Because of the limited market for dairy equipment and supplies there are no agencies which make a specialty of handling these lines Should any large equipment be purchased, the transaction would in all probability be solely between the manufacturer and the purchaser However, the leading merchants in hardware, agricultural implements, and machinery would be the logical distributors for the smaller dairy equipment, such as milk cans The names of such firms may be secured upon application to the Commercial Intelligence Division of the Bureau of Foreign and Domestic Commerce

U. S. DEPARTMENT OF COMMERCE
R. P LAMONT, Secretary
BUREAU OF FOREIGN AND DOMESTIC COMMERCE
WILLIAM L COOPER, Director

FAR EASTERN MARKETS FOR DAIRY EQUIPMENT AND SUPPLIES

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FOREWORD

Foreign markets for improved dairy equipment are matters of slow growth, depending largely on the degree of development of the dairy industry and the extent to which milk production and the manufacture and distribution of dairy products are supervised through sanitary regulations. The accompanying survey of the Far East shows that Australia and New Zealand are the largest markets, for it is in these countries that dairy industries have reached a relatively advanced stage of development and are under strict sanitary regulations. These countries are also the principal purchasers of American dairy machinery in the Far East.

Under the stimulus of an active and progressive domestic market the manufacture of dairy equipment in the United States has reached a high degree of efficiency, both in production methods and in the superior quality of output. In turning to foreign fields as additional outlets for this equipment, the supplier must ascertain whether the dairy industries in these countries are sufficiently advanced to require his product. In the following survey endeavor is made to cover this point by presenting statistics showing the production of milk, butter, cheese, and related products, the extent of sanitary regulation, and the progressiveness of the market. This information should be of interest as indicating the best actual markets, those which are potentially important although negligible at present, also those where no sales effort would be warranted.

The Industrial Machinery Division and the Agricultural Implements Division of the Bureau of Foreign and Domestic Commerce offer their cooperation in assisting the American manufacturer and exporter of dairy equipment and supplies to sell their products in foreign markets.

WILLIAM L. COOPER, *Director,*
Bureau of Foreign and Domestic Commerce.

AUGUST, 1930.

FAR EASTERN MARKETS FOR DAIRY EQUIPMENT AND SUPPLIES

INTRODUCTION

Highly improved dairy equipment such as has been developed in the United States, with its progressive dairy industry and high standard of living, can be sold in volume in only a few foreign markets There are, nevertheless, outlets for certain types which are worthy of consideration by American suppliers

The following table shows the value and destination of exports of American dairy machinery during 1928 and 1929

UNITED STATES EXPORTS OF DAIRY MACHINERY, 1928 AND 1929

Destination	Cream separators		Total, including other dairy machinery	
	1928	1929	1928	1929
Canada	$575,486	$438,218	$1,606,472	$1,584,396
Australia	116,997	133,884	168,137	177,026
Cuba	4,134	8,517	49,058	160,282
United Kingdom	20,204	433	98,414	110,000
New Zealand	9,558	73,207	25,175	103,265
Union of South Africa	16,184	12,922	30,380	52,876
Mexico	2,503	2,034	29,999	35,070
Argentina	28,965	4,483	63,706	26,966
France	---------	2,079	9,719	38,279
Total, including other countries	797,460	700,453	2,301,887	2,469,247

In certain countries of the Far East, such as China and India, there is little or no demand for dairy products from the bulk of the population, owing to small purchasing power and low living standards, the demand being limited almost entirely to the European populations In other countries, however, such as Australia and New Zealand, the dairy industry has been well developed, and the dairy products of these countries rank high in world markets It is the purpose of the following survey to indicate those markets where the demand for dairy equipment and supplies is such as to justify sales effort by the American manufacturer

AUSTRALIA

VICTORIA, SOUTH AUSTRALIA, AND TASMANIA

S R Peabody, American Trade Commissioner, Melbourne

The market possibilities for dairy supplies and equipment in Victoria, South Australia, and Tasmania have two distinct aspects, namely, the possibilities for equipment used in the manufacture of butter and allied products, and for that used in the handling and processing of milk as such. The former field does not present great potentialities for American equipment, while the latter offers a good field for development. It must be remembered, nevertheless, that this market is necessarily limited by the size of the industry, compared with that of other countries.

Briefly, the dairy industry in these three States is well developed and making good strides in the use of modern equipment. With regard to butter equipment, the Australian industry ranks high. The contrary is true, however, with respect to milk and ice-cream equipment. While this report deals more particularly with the State of Victoria, it should be remembered that conditions and regulations in South Australia and Tasmania are practically the same.

MILK PRODUCTION AND UTILIZATION

The following table gives milk production for all purposes from 1916 to 1926–27.

MILK PRODUCTION IN AUSTRALIA, 1916 TO 1926–27

Year	Victoria	South Australia	Tasmania	Year	Victoria	South Australia	Tasmania
	Gallons	*Gallons*	*Gallons*		*Gallons*	*Gallons*	*Gallons*
1916	[1] 186,592,906	[1] 29,954,005	13,363,840	1922	[1] 249,321,522	[1] 42,054,213	21,000,000
1917	[1] 199,737,930	[1] 32,308,881	14,842,560	1923	[1] 260,952,380	[1] 47,621,159	[1] 21,200,000
1918	[1] 207,101,710	[1] 32,242,763	15,796,160	1924	[1] 294,764,870	[1] 45,426,393	[1] 21,840,000
1919	[1] 196,884,121	[1] 30,899,553	16,502,760	1925–26	255,120,060	41,385,865	18,684,000
1920	[1] 201,522,470	[1] 34,656,709	19,000,000	1926–27	258,436,660	40,433,552	21,009,000
1921	[1] 245,181,220	[1] 41,397,905	21,000,000				

[1] Year ended June 30.

The following table shows the quantity and value of milk used for purposes other than making butter, cheese, and condensed, concentrated, and dried milk from 1917–18 to 1926–27.

MILK USED AS SUCH IN VICTORIA, SOUTH AUSTRALIA, AND TASMANIA, 1917–18 TO 1926–27

Year	Victoria		South Australia		Tasmania	
	Quantity	Value	Quantity	Value	Quantity	Value
	Gallons		*Gallons*		*Gallons*	
1917–18	34,255,870	£1,427,328	6,123,475	£255,145	2,002,638	£83,443
1918–19	37,267,600	1,532,324	6,599,032	324,452	3,764,005	184,572
1919–20	38,996,261	2,762,235	6,560,016	464,668	5,152,789	364,989
1920–21	39,654,543	3,263,247	6,594,267	542,653	8,414,800	692,468
1921–22	40,508,054	2,240,447	6,664,852	370,270	7,311,731	406,207
1922–23	42,037,362	2,627,535	7,303,260	456,454	6,348,455	396,778
1923–24	44,630,980	2,324,530	7,683,858	400,305	5,974,660	311,180
1924–25	47,692,770	2,265,407	8,098,206	384,665	6,100,592	289,778
1925–26	47,188,890	2,752,685	8,073,216	470,938	6,094,000	355,483
1926–27	47,406,650	2,699,545	8,243,373	469,414	5,953,817	337,898

The quantity of butter and cheese produced in factories compared with that produced on farms for 1926–27 was as follows

BUTTER AND CHEESE PRODUCTION IN VICTORIA, SOUTH AUSTRALIA, AND TASMANIA, 1926–27

Item	Victoria	South Australia	Tasmania
BUTTER	*Pounds*	*Pounds*	*Pounds*
Made in factories	78, 108, 491	9, 857, 791	4, 268, 936
Made on dairy and other farms	3, 887, 324	3, 559, 113	1, 763, 661
Total	81, 995, 815	13, 416, 904	6, 032, 597
CHEESE			
Made in factories	5, 481, 585	3, 708, 730	739, 812
Made on dairy and other farms	516, 063		231, 832
Total	5, 997, 648	3, 708, 730	971, 644

In Victoria there were also produced (in 1926–27) 38,645,878 pounds of condensed or concentrated milk, 9,540,162 pounds of powdered milk, 1,803,049 pounds of casein, and 350,570 pounds of milk sugar

The greater part of the skim milk, buttermilk, and whey is fed to stock A small percentage is used for the manufacture of by-products Some rennet whey and some acid casein is made, the amount manufactured depending entirely on the demand and price The capacity for manufacture is greater than the demand for the product which is frequently thrown away when casein is selling at a low price

Dried buttermilk is made by the Just-Hatmaker process and dried milk by the Merrell-Soule process Most of the equipment used is made locally and is protected by a substantial ad valorem duty In Victoria there are four large producers of dried milk, one of whom uses equipment imported from New Zealand, one Swiss equipment, and two equipments made locally Cheese presses and vats are made in Australia and weighing machines are imported principally from Denmark

BUTTER MANUFACTURE

In the manufacture of butter, in which Australia excels, ammonia machines are used for refrigeration There is small possibility of importing American equipment for use in butter manufacture In pasteurization the batch system is used entirely in Victoria, South Australia, and Tasmania, compared with the flash system used in New South Wales The coil vat pasteurizer is in general use Two local firms manufacture practically all the pasteurizing equipment and churns used Most of the temperature-control equipment is imported from America and is mainly the product of a well-known company in the United States There has not been much development in this field as yet, but it offers some possibilities

SANITARY SUPERVISION OF MILK

The sanitary supervision of milk and its products comes under the administration of the State Department of Agriculture The butter and produce industry comes under the supervision of the produce division whereas milk production and distribution is supervised by the livestock division In Victoria the former industry is regulated under the dairy produce act of 1919 Factories must be licensed and must employ certified testers and graders The tests are made by the Babcock method and the grades are determined as follows Choicest grade butter, pure butter, graded at 92 to 100 points, first-grade butter, pure butter, graded at 90 to 91 points, second-grade butter, pure butter, graded at 84 to 89 points

Milk as such is regulated under the dairy supervision act of 1912 and the milk supply act of 1922 Under present regulations the inspection and supervision relate to the production of the milk on the farms, as well as to the farmers' equipment, herds and their condition, as well as the transportation and distribution of milk

It is required that milk be cooled as soon as possible after production, either by the brine system or by cold water The dairies in the metropolitan area of Melbourne must be licensed and regularly inspected On receipt of the milk they must cool it by means of brine to a temperature below 40° F The sale of milk after it has reached a temperature of 60° or over is prohibited The pure-food laws require a minimum of 3 5 per cent of butterfat

As a means of further supervision, there is an advisory committee composed of representatives of the Government, the producers, the distributors, veterinarians, and the railways, which has the power to draft and propose to the State government changes in supervision and inspection This committee recently completed a new set of regulations which are expected to alter materially present methods of milk distribution in Melbourne

DISTRIBUTION

Fluid milk —Fluid milk is cooled on the farm by means of brine or water and is usually put in 10-gallon cans for shipment These are transported by motor lorries or horse-drawn vehicles to the railway station and shipped by rail to the metropolitan stations nearest the dairies There is no modern equipment used in this transport by rail with the exception of one experimental glass-lined tank car, built locally and used between Murray Bridge and Adelaide At producing points within 10 miles of the city milk is brought in by motor truck in the sort of can mentioned previously In one instance a glass-lined tank truck is used

The larger dairies in the metropolitan areas arrange contracts with the farmers for their supply of milk and do not own any farms. They take delivery of the milk at the railway and transport it to their dairy or milk depot They prepare the milk for distribution there, and in addition to supplying their own large retail trade also sell to smaller retailers who have no plant of their own

These large firms do nearly all the pasteurizing that is done, which amounts to about 33 to 40 per cent of the milk sold There is a growing tendency, however, for this to be done on the farm The equipment used is mainly imported from the United States Glass-lined pasteurizers are in predominance and the batch system is employed The milk is heated to a temperature of 140° F and held at this temperature for 30 minutes, and then promptly cooled. Local manufacture and occasional importations from the Netherlands constitute the only competition in this line

Between 30 and 40 per cent of the milk sold to the consumer is bottled This does not necessarily mean that all bottled milk is pasteurized The bottling is done chiefly at the large dairy depots in the city, although some of the smaller retailers do a little If the new milk regulations are put into effect, all milk retailed will be bottled This will probably result in consolidation of the smaller retailers into several large firms

There is a good present and prospective field for American-made bottle-filling machinery All the equipment in use is imported from the United States, and none is made locally Bottle-washing machinery of the smaller type is made locally, but all the large machines are imported and are of United States manufacture

At present, as indicated by the smaller percentage of bottled milk, most of the milk is distributed to the consumer in cans or tanks and is ladled out at the door into the consumer's receptacle The small horse-drawn or motor vehicles which are used for milk delivery may or may not be provided with icing facilities

Butter —Butter is generally sold in bulk, wrapped in rice paper, but there is an increasing tendency to pack in cartons, and at present the machines used are imported A small amount of the butter for export is packed in cartons

The following table shows the exports of butter and cheese from Australia for five years

EXPORTS OF BUTTER AND CHEESE FROM VICTORIA, SOUTH AUSTRALIA, AND TASMANIA

Year	Victoria	South Australia	Tasmania	Year	Victoria	South Australia	Tasmania
BUTTER	*Pounds*	*Pounds*	*Pounds*	CHEESE	*Pounds*	*Pounds*	*Pounds*
1923-24	35,342,528	3,031,612	445,200	1923-24	742,631	258,647	----------
1924-25	53,731,160	2,518,286	660,912	1924-25	1,785,613	34,833	----------
1925-26	32,874,047	1,948,914	116,816	1925-26	292,231	13,353	----------
1926-27	34,347,562	1,589,885	----------	1926-27	105,837	----------	----------
1927-28	32,412,400	594,000	300	1927-28	(1)	----------	----------

[1] Not available

ICE-CREAM MANUFACTURE

The machinery used in the manufacture of ice cream is principally of American make There is some French competition in pasteurizers and some local competition in ice-cream machinery of the smaller types Equipment of larger capacity, however, including ice-cream packaging machinery, is imported from the United States

The equipment used for delivery of ice cream from the manufacturer to the dealer is the same as that employed in the United States A few dealers keep cream in old-fashioned wooden tubs with ice and salt, but most of them lease or buy from the manufacturer a small electric refrigerating unit These are of American manufacture, made by the leading manufacturers in the United States

TRADE METHODS AND ADVERTISING

Because of its limited extent, practically all the business is conducted direct between the purchaser and the manufacturer or a manufacturer's agent or representative What little advertising is done consists of direct mail circularization and advertisements in farm journals and the daily press

Progress has been made in the local production of factory equipment for the butter industry and there is little opportunity for the American manufacturer The milk and ice-cream industry both offer a good field for the development of trade from the United States, particularly in view of the efforts being made to improve conditions in these lines

The names of importers of dairy equipment and supplies in Melbourne who might be approached by American suppliers may be secured upon application to the Commercial Intelligence Division, Bureau of Foreign and Domestic Commerce, at Washington

NEW SOUTH WALES, QUEENSLAND, AND WESTERN AUSTRALIA

E C Squire, American Trade Commissioner, Sydney

Total milk yield of cows in registered dairies in New South Wales is about 290,000,000 gallons per annum, and this total is gradually increasing each year Production of milk in Queensland amounted to 132,144,000 gallons in 1926, the latest year for which figures are available Here also production has increased, as indicated by the fact that in 1918 it amounted to only 87,570,000 gallons In Western Australia production has risen steadily during each year of the last decade, the figures for 1917 being 7,550,325 gallons and for 1926, 15,552,665 gallons

SANITARY SUPERVISION

In New South Wales milk is produced under the supervision of government officials, who regularly examine all milking cows and have the authority to destroy those which are diseased Government officials also inspect and control the production of milk, its care and treatment, and the manufacture of milk products, their transport, and to a certain extent their marketing Butter must be sold under a brand designating its quality

It is necessary for all dairy farmers in Queensland to comply with the provisions of the dairy produce act of 1920 and the health acts of the State

In Western Australia dairies which supply fluid milk are compelled to register with the local board of health of the municipality or district in which the dairy is situated, and are subject to its supervision Officers of the dairy division stationed in country districts make frequent visits to dairy farms for the purpose of sanitary inspection

USES OF MILK

The percentage of milk used for direct consumption as fluid milk, based on figures for 1926, were as follows New South Wales, 19 per cent, Queensland, 4 per cent, Western Australia, 46 per cent

Butter production—In New South Wales about 80 per cent of the butter is produced in creameries or factories Production for the preceding four years averaged 45,000 tons, of which 2,000 tons were produced on farms, according to 1926 statistics In Queensland 21,716 tons were manufactured in registered factories, while less than 8 tons were manufactured by farmers For Western Australia 1,100 tons were produced in factories and 609 tons on farms

Cheese production—In New South Wales 2,900 tons of cheese were produced in 1926, of which approximately 400 tons were made on farms In Queensland 3,965 tons were manufactured at registered factories, while the production by farmers was slight For Western Australia 73 tons of cheese were produced in factories, and the quantity produced on farms was negligible

Condensed, evaporated, and powdered milk—New South Wales produced about 2,680 tons of condensed milk in 1926 and small quantities of powdered milk Ice-cream powder is not produced In Queensland there is a single condensary with an output of 2,917 tons of condensed milk in 1926 No evaporated powdered milk or ice cream is produced None of the products are manufactured in western Australia

Skim milk, buttermilk, and whey—Practically all skim milk, buttermilk, and whey is fed to stock in the three States under discussion A small portion of buttermilk and skim milk is made into casein in New South Wales

DISTRIBUTION

Fluid milk—In New South Wales milk is distributed to consumers direct from dairies in the vicinity of towns and cities, from depots in the country where milk from farms is collected, pasteurized, chilled, and dispatched to the large towns and cities in insulated tanks by rail or motor

Throughout the State of Queensland practically all milk for consumption in fluid state is delivered to the consumer within four hours of milking This is known as warm milk In Brisbane, the capital of the State, however, approximately five-twelfths of the milk consumed is delivered through middlemen, but most of the milk is produced within 20 miles of the city and is delivered to distributors and customers by motor vehicles Milk consigned to the city by railway is contained in ordinary 5 and 10 gallon milk cans

In western Australia milk is received from the producer by the distributor in 5 and 10 gallon cans by rail or motor lorry A considerable quantity is received by motor lorry within a radius of 30 miles from Perth and by rail up to 100 miles Most of the milk supply coming from a considerable distance is precooled at a depot prior to transporting

The bottling of milk is negligible In New South Wales a small portion of milk is bottled at large central depots for direct consumption Milk is usually distributed to consumers in motor or horse-drawn vehicles, which are equipped with a small bulk tank to hold approximately 50 gallons From this tank the quantity required for each household is drawn off at the door

As the consumption of milk in Brisbane is only 12,000 gallons daily, there has been no necessity for the erection of depots to cope with the supply, and most of the milk is sold without treatment The amount of milk bottled is negligible and practically confined to the city of Brisbane

No figures are available relative to the percentage of milk bottled in western Australia Milk is bottled at several depots in half-pint, pint, and quart bottles Raw milk is ladled out to the consumer from hand cans, while bulk milk is carried in 10 and 15 gallon cans in the delivery cart The same method is also applied to a large proportion of the pasteurized milk

In New South Wales the major portion of milk produced in towns or city dairies is not pasteurized Country milk is generally pasteurized and chilled to 35° F The pasteurizers employed are of both the flash and the holding types, but the majority of the plants are equipped with the former

In Queensland pasteurization is applied only to bottled milk and is confined to a small portion of the Brisbane supply The batch method of pasteurization is prescribed under the health acts

The holding system is in general use in western Australia for the pasteurization of milk, and enamel-lined pasteurizers are used

Butter —Butter is not packed in cartons In New South Wales 50 per cent of the butter is packed by automatic cutting, weighing, and wrapping machines in ½-pound and 1-pound packages

In Queensland and western Australia by far the greater portion of butter is cut and wrapped in pat form

Ice cream —Ice cream is distributed in 1 to 5 gallon cans, which are manufactured locally of tinned steel For delivery by rail each can is packed in ice in an upright tub, which is also built locally Suburban and city delivery is made by means of motor vans into which cooling chambers are built Ice and salt are placed around these chambers and the cans of cream are placed inside

The larger concerns have a stock of electric freezing chambers which may be either hired or bought by their dealers Dealers not in a position to do this are supplied with a wooden chest in which the cans of cream are packed with ice

Improvement in delivery equipment —There has been no outstanding advancement in the use of delivery equipment other than the use of electric freezing chambers and the installation of cool chambers on motor vans, already mentioned Electric freezing chambers have been used for several years The majority of motor vans and electric systems used are of American manufacture

DEALER INFORMATION

The names of importers or agents for dairy and ice-cream equipment and supplies in New South Wales, Queensland, and western Australia may be secured from the Commercial Intelligence Division, Bureau of Foreign and Domestic Commerce.

CHINA

Jerome Marcs, Office of American Trade Commissioner, Shanghai

Statistics covering the production of milk in China are not obtainable According to information available, however, the production is so limited that it is of little commercial significance, owing to the fact that the demand is almost entirely from the European and American population resident in the various treaty ports of the country Milk is not a staple diet among the Chinese, its cost being beyond their means, and in cases where it can be afforded it is generally consumed as a medicine or tonic.

DAIRY EQUIPMENT

These conditions result in limiting the number of dairies in China, and it necessarily follows that there is a comparatively small demand for dairy supplies and equipment. Probably 70 per cent of the dairies using up-to-date equipment are located in Shanghai. Their activities consist almost entirely of producing and distributing fluid milk locally, and in the case of one dairy, as far away as Hankow. Butter, cheese, and evaporated and condensed milk are all imported from Australia and the United States cheaper than it is possible to produce them domestically. Ice cream is manufactured in China, but generally from evaporated milk and ice-cream mix or powder which are also imported from the same sources. It will be readily appreciated, therefore, that equipment for the manufacture of these commodities is not in demand at present.

MILK DISTRIBUTION

Modern milk bottles of approved type are in use at all licensed dairies in Shanghai. Steam boilers connected with washing plants for bottles and containers and also with sterilizing equipment have been installed in practically all of them. Pasteurization is usually accomplished by heating the milk to approximately 145° and not less than 142° F. and holding it between these temperatures for at least 30 minutes. Recording of the temperature and holding period is done by a thermograph to insure accuracy, and protection against possible subsequent contamination. Distribution is made by coolies in hand-drawn carts or small motor trucks, the major part of deliveries being made in bottles.

ICE CREAM

Ice cream is finding considerable favor among the Chinese, it being imported from the United States as well as manufactured in various parts of China. The sale of the imported article is practically limited to Shanghai, where it is retailed by various confectionery shops. Locally manufactured ice cream is generally made from mix frozen solid. When it arrives in Shanghai, it is put through a "mojonnierizer" at the ice-cream plant to break up any crystallization which may have occurred. The locally made article is also marketed in "bars" and "pies" by street venders and in motion-picture theaters. Delivery by the manufacturer to the dealer is made in containers packed in ice and salt. Some retailers have automatic refrigeration cabinets as a part of their soda-fountain equipment.

OUTLOOK FOR SALE OF EQUIPMENT

It will be realized from the foregoing that the sale of dairy supplies and equipment depends almost entirely on the rapidity with which the Chinese accustom themselves to the consumption of milk and ice cream, a custom which appears to be slowly but surely gaining favor among those who can afford it.

The names of the two importers of dairy supplies in Shanghai, also a list of dairies in that city which might be approached by American suppliers, may be secured from the Commercial Intelligence Division, Bureau of Foreign and Domestic Commerce, Washington, D. C.

INDIA

Charles B Spofford, Jr , American Trade Commissioner, Calcutta

The Indian market for dairy supplies and equipment is too negligible to justify an extensive report, but American manufacturers of such equipment should be able to obtain a good idea of the prospects for sales promotion in India from the references to dairying contained in the Report of the Royal Commission on Agriculture in India, published in July, 1928 An abstract of the commission's report follows

THE MARKET FOR MILK AND MILK PRODUCTS IN INDIA

There are no statistics on the subject but it would appear that the greater part of the milk produced is consumed in the form of ghee (clarified butter in oil form), curds, and sweetmeats In all of the larger towns, the supply of fresh milk is small, in Bombay, it has been estimated at about 7 gallons and in Calcutta at about 8 gallons per head per annum The price of pure milk is high, and if it was reduced to half the current rates there is little doubt that the consumption would be more than doubled Owing to an increase in the habit of tea drinking in recent years the demand for milk in urban centers has increased, and there are now considerable imports of condensed milk, especially into Burma The average imports in the three years 1924–1927 amounted to 6,965 tons, of which 4,903 tons went to Burma

Throughout India generally the supply of fresh milk in villages is stated to be defective, and the climate makes the keeping and transport of fresh milk difficult In the Central Provinces, the supply is estimated at less than 3 ounces per head daily, or 6½ gallons per head per annum, in Bombay, most villages are short of milk, in Madras and in the United Provinces the supply of fresh milk in villages is said to suffice for the demand In Bihar and Orissa the supply is considered to be too small for the cultivator's household needs

All the evidence available points to the conclusion that the consumption of fresh milk in India is very small when compared with such countries as the United States of America, Denmark, Sweden, and Switzerland Since the desire for milk is widespread and the consumption is relatively small, it would appear that the difficulties in the way of economic milk production and distribution in India are formidable

For children fresh cows' milk is preferred, and in certain areas, as in the Sind, adults also prefer it, in general, however, the demand in villages is for buffalo milk, since the milk of the buffalo contains, on the average, from one-third to one-half more fat than that of the cow, and thus produces much more ghee Both buffaloes and cows are kept by milk sellers engaged in city trade In Bombay the supply comes largely from buffaloes In Calcutta, there is a larger demand for cows' milk than in Bombay, and many cows are kept within the city boundaries

The position may be summed up by stating that there is unquestionably a large unsatisfied demand for ghee, there is a relatively small unsatisfied demand for butter, there is also, in all cities, an unsatisfied demand for milk at lower prices, it must therefore be inferred that consumers in gĕneral are not able to pay the prices which under existing conditions, are required to produce the supply

(NOTE —Ghee, which is known as neyi in Southern India, is clarified butter prepared in practically every household by heating butter over a slow fire until an oil is formed which rises to the surface, while the refuse (mostly casein) settles as sediment This oil is then decanted and has the great advantage over butter that it will keep almost indefinitely Butter loses about 25 per cent in the process of clarification The chief producing areas are the United Provinces, Bengal, Rajputana, Central India, and the Punjab

Ghee is ued for all purposes to which butter is put in Europe and is also extensively employed in the preparation of sweetmeats Adulteration is largely practiced with the aid of vegetable oils like that of coconut and peanut, and also with animal fats and starch The bulk of the quantity produced is locally consumed —From Handbook of Commercial Information for India, by Collector of Customs, Calcutta)

The condition of cattle in many parts of the country is deplorable, and because of the character of the supply, the consumption of milk in the towns is small In Bombay and Calcutta it appears to be from 7 to 8 gallons per head per annum, and this is probably an ordinary amount for cities The only other figures we have met with is a recent estimate of 7½ gallons for Lahore, and an estimate for Poona made by Doctor Mann in 1913 The Poona supply was then about 8 gallons per head, four-fifths of this quantity was produced within the city and practically all of it came from within a 9-mile radius The large extent to which the supply is produced within the city itself, or in its immediate neighborhood, is a noteworthy feature of the urban milk trade About four-fifths of the milk of Bombay comes from buffaloes stabled within the city In both Calcutta and Madras large numbers of cattle are kept, and we were informed in the United Provinces that, although milk is fairly plentiful, it is difficult to market it in cities, where the prices may be twice as much as in the surrounding districts, because the trade is in the hands of city "gowalas," who place obstacles in the way of village competitors

In Calcutta a very promising cooperative movement has recently been started, partly to improve the city milk supply and partly to enable cultivators in neighboring villages to break the gowalas' ring, and thus secure a fair return for their produce A cooperative milk union within the city, with a well-equipped dairy, pasteurizes and bottles milk for delivery to hospitals, baby clinics, hotels, and private customers The union has received substantial financial aid from the Calcutta corporation The supply comes from affiliated village societies, of which there were 71 in 1925–26, with a membership of about 3,600 The central society employs a veterinary surgeon to attend to the cattle of members, the cow sheds are inspected, the milking is carefully attended to, and milk goes from each village to the nearest collecting depot, of which six are maintained, thence it is shipped in sterilized cans to Calcutta by rail The central society is run at a profit The rural societies are doing well In five years their membership has gone up 50 per cent, but in this period the supplies of milk have been doubled, for the average quantity per member has risen from 0 56 to 1 15 seers per day. The experience of this Calcutta cooperative society shows what can be done by very small producers situated near railways and engaged in a high-class trade. As a first contribution to the solution of the difficulties experienced by urban consumers, it is worthy of imitation wherever possible Municipalities should follow the lead of the Calcutta corporation, encourage the formation of central distributing societies, and endeavor to arrange for groups of producing societies in all localities suited for milk production and having a good rail service Although there is nowhere else such a complete organization as around Calcutta, cooperative societies for the supply of milk have at some time or other been organized near a number of towns, as, for example, around Benares, Bombay, Ahmedabad, and Nagpur

These efforts to organize small producers cooperatively, though of much value both to producers and to consumers, can not be expected to solve the problem of providing a cheap and pure supply for towns To insure cheap milk it must be handled in bulk in India as in other countries, and, unfortunately, India can not depend on pastures as the source of cheap city milk, since, owing to the long periods of drought occurring in this country, pastures on which cows could produce large quantities of milk do not exist Such grazings as the country does provide are usually distant from railways, and the mere collection and transport of the small yields which cows on Indian grazing grounds are capable of producing would make city milk dear, even if it were a free gift from producers There would, however, be no inherent difficulty in producing cheap milk from fodders grown on cultivated land, for there are many localities in which fodder crops could be grown more cheaply than in most western countries Moreover, although distances are great, it should not be difficult to find districts suitable for fodder growing, from which the transport of milk could be arranged at rates which would not make a large addition to retail costs Milk is now carried by passenger train at half parcels rates, or 2 rupees 8 annas per maund for 500 miles, but if a large trade existed, special rates would undoubtedly be given The East Indian Railway, for example, now carries milk in cans at owners' risk 500 miles for 13 annas and 1,000 miles for 1 rupee 7 annas per maund

MUNICIPAL CONTROL OF MILK AND GHEE SUPPLIES

Under various municipal and sale of food and drugs acts the larger Indian cities have powers to license and control persons who keep cattle within their boundaries for the sale of milk to the public, or who own milk shops and dairies. By-laws have been drawn up and their enforcement has been entrusted to the health departments

In reply to communications which we addressed to the secretaries of eight large municipalities we have received information relating to the steps now being taken to enforce these by-laws. Some figures bearing on the extent to which adulteration of milk is practiced are given below, and, as regards procedure, it will suffice if we give a few general particulars respecting the methods of enforcing by-laws adopted in Bombay.

The municipality of Bombay has given much attention to the subject of adulteration of dairy produce and takes many more samples of milk supply for analysis than any other. As we have already stated, the milk supply of Bombay is poor, and there is much adulteration. Continuous efforts have been made to effect an improvement since, in 1912, the provisions of the Bombay Act No. II of 1899, dealing with the adulteration of ghee and some other foods, were extended to include the adulteration of milk. The city now maintains a staff of 70 sanitary inspectors for all purposes, under the health officer, and 5 assistant health officers. The sampling of milk is carried out by 20 of the senior sanitary inspectors, assisted by 7 subinspectors. Three veterinary surgeons are employed in the inspection of stables, which house, in addition to horses and bullocks, about 16,000 milk buffaloes. It is recognized that there are many objections to the housing of milk buffaloes in the city, and a scheme has been prepared for the erection of new stables some miles from Bombay, but it has been held up for the present because there is no statutory authority for the expenditure of municipal funds on the scheme.

QUALITY OF CITY MILK SUPPLY

The quality of the milk supply of Bombay may be judged, and that of other cities (some of which have not even taken powers to sample milk) may be inferred, from the following statement showing the number of samples analyzed and the results of completed analyses in the latest year for which figures are available.

	Samples analyzed	Found adulterated	Percentage found adulterated		Samples analyzed	Found adulterated	Percentage found adulterated
Bombay, 1926	3,575	1,630	45.6	Lucknow, 1927	11	8	----------
Calcutta, 1926	1,003	349	34.8	Allahabad, 1927	2	0	----------
Calcutta, 1927	945	246	26.0	Madras	Nil	----------	----------
Patna, 1925–26	29	(1)	----------	Nagpur	Nil	----------	----------

MILK ADULTERATION PRACTICES

These figures do not disclose the full extent to which adulteration is practiced. In order to give milk sellers the benefit of the doubt, the custom in all milk prosecution cases is to presume adulteration on a standard representing the lowest quality milk which a healthy animal is likely to yield. The standard in respect to milk fat usual in India is for buffalo milk not less than 5 per cent, and for cow milk not less than 3.5 per cent, but the mixed milk of three or four buffaloes in the Bombay Presidency will usually contain 7.5 per cent of fat, and will rarely fall as low as 6.5, while for cows' milk the corresponding figures would be 4.7 and 4 per cent.

In estimating the extent to which the above figures represent the real percentages of adulterated produce sold, the administration of the law must also be considered. * * * We are informed that fines are inflicted in proportion to the amount of water added. A Bombay milkman who contented himself with the addition of 15 per cent of water to buffalo milk would rarely get into trouble, and even if twice this quantity were added, and he were detected, the penalty would be small. We can not therefore draw the conclusion from the Bombay figures that 54.4 per cent of the samples taken in 1926 were free from added water; the percentage of samples of pure milk was probably very much less, and if, in Bombay, where great efforts are being made to check adulteration, so much watering of milk exists, it is evident that, where no control is attempted, the position must be very bad.

There are other sanitary aspects of city milk supply of special importance to consumers, to which municipalities are now giving attention. We do not propose to discuss them as they bear less directly on questions affecting producers than does this subject of adulteration. We believe that the almost universal practice of watering milk has been largely responsible not only for the wretched condition of the urban supply but for the neglect of milk cattle We have in India an illustration of Gresham's well-known law, here it applies to milk, not to money, but it is no less true of milk than of money that the bad drives out the good Watered milk has been driving pure milk out of Indian cities throughout a long period and even at the price of 6 annas per Bombay seer (10 pence per quart) very small supplies of pure milk are forthcoming

REGULATION OF GHEE PRODUCTION NEEDED

The purity of ghee, like that of milk, is a subject affecting the interests of the producer Ghee making is not only a widespread village industry, but an important aid to successful dairy farming on a large scale Many complaints of the adulteration of ghee have been made to us, and our attention has also been directed to the increasing sale of substitutes known as vegetable ghee No exception can be taken to the sale of substitutes for ghee, if these are properly described, and are sold under names which do not lead the public to suppose that they are ghee, for in all countries such substances are recognized as cheap and wholesome foods, but there are grave objections to misdescription We believe that unless municipal authorities possess and exercise powers of control over ghee production, the difficulty already experienced by persons desirous of purchasing pure ghee will increase, for the certain effect of unrestricted adulteration and substitution would be to drive the genuine product out of the market

IMPERIAL INSTITUTE OF ANIMAL HUSBANDRY AND DAIRYING, BANGALORE

An imperial dairy expert was appointed in 1920, and in 1923 three military dairy farms, situated respectively at Karnal, in the Punjab, and at Bangalore and Wellington, in the Nilgiris, were transferred to his charge in order that experimental work might be carried on The central institution was located on a farm of about 100 acres at Bangalore A herd of cross-bred cattle, which had been taken over with the farm, was retained, and to this a herd of pure Sindhi cattle was added Accommodation for teaching and also dairy machinery and appliances were provided, the assistance of the staff of the animal nutrition section of the Bangalore institute was secured, and courses of study suitable for training dairy managers and also courses for the employees on military dairy farms were offered

The main course of study, that for dairy managers, lasts for two years and leads to the "Indian Diploma in Dairying " Applicants for admission must be 17 years of age or over, and as a rule must have matriculated in an Indian university, or have passed the school final examination, but, in certain cases, this requirement may be waived The institute at Bangalore can accommodate about 20 pupils, and so far there have been from three to four times as many applications for admission as can be accepted In announcing the arrangements for this course, the Government of India expressed the hope that, sooner or later, agricultural colleges in India would possess the necessary staff and equipment to train candidates for the diploma, but, meantime, we understand that the only other institution offering a similar training is the Allahabad Agricultural Institute, which commands a missionary staff of well-qualified American graduates

The dairy farm at Wellington is run as an annex to the central farm at Bangalore Although the farm has been transferred to the Agricultural Department, it still functions as a military dairy and provides milk and butter for the troops stationed in the vicinity The farm at Karnal extends to about 2,150 acres, of which some 1,400 are irrigated from the Western Jumna Canal Students from Bangalore spend part of their course here studying dairy-farm management

A fourth institution, which is at present also in charge of the imperial dairy expert, is the creamery at Anand, in Gujarat This creamery, which is situated in the chief milk-producing district of India, was started by the Military Farms Department during the war in order to manufacture butter for troops As it was no longer required for military purposes, it was transferred to the charge of the imperial dairy expert and is used for instructional purposes Students from Bangalore are trained in methods of cream separation and in the manufacture of butter and ghee on a large scale It is proposed that investigations into the manufacture of ghee, butter, condensed milk, and dried milk should be conducted at Anand, and experiments in condensing milk have already been begun

Although the three institutions, at Bangalore, Karnal, and Anand, are situated in widely separated parts of the country, the 2-year course of study for the diploma in dairying includes a period of training at all of them It is claimed that the experience gained in different parts of India compensates for the inconvenience and expense involved by this procedure

It will thus be seen that the three lines of work mapped out for the dairying section of the Imperial Institute at Bangalore are the instruction of students in dairying, which is not at present adequately provided for elsewhere, the breeding of cattle on lines parallel to those on which work is proceeding on the provincial cattle farms, and research into manufacturing processes of important milk products The work of the farms has been economically and efficiently carried out On the two farms used for instructional purposes a capital outlay of about 276,000 rupees has been incurred since they were handed over by the Military Department, and in the two years 1924–1926 the receipts have exceeded the disbursements by 27,000 rupees The course of study provided has been approved by the Board of Agriculture, and that it is appreciated by students is shown by the applications for admission Investigations into manufacturing processes have only recently been initiated, and we are, therefore, not in a position to comment on results We have carefully considered the question whether the existing form of organization of the dairying section of the Banaglore institute should be regarded as permanent, or whether it should be looked upon as merely a necessary provision during a transition stage in development The second of these views is that which we would support

JAPAN

H. B Titus, Assistant Trade Commissioner, Tokyo

The use of fluid milk in Japan is not nearly so common as in many other countries, largely because of the relatively small production and high price of milk Milk as delivered in the cities sells at 10 sen (approximately 5 cents) a half pint On account of the high cost of milk babies and small children are not fed milk as is the custom in many other countries, but are nursed for a much longer period of time and then in most cases go direct to solid food

The use of butter in Japan is growing yearly but it is only within recent years (since the advent of foreign food—and particularly in the cities) that it has been used to any considerable extent by the Japanese themselves

Cheese is growing in popularity but the production is still very small, and imported cheese sells at prices which make it impossible for any but the well-to-do to purchase it

The use of condensed and powdered milk is growing and has already reached considerable figures Condensed milk is produced in Japan, the production is increasing and imports are also large, being valued in 1925 at 3,971,280 yen, in 1926 at 3,642,694 yen, and in 1927 at 3,751,480 yen (The average value of the yen in 1925 was approximately $0 41 and in 1926 and 1927, about $0 47)

The following statistics give details of imports of condensed milk during recent years·

IMPORTS OF CONDENSED MILK INTO JAPAN, 1924–1926

Country	1924	1925	1926
	Yen	*Yen*	*Yen*
United States	3,256,000	2,107,000	2,303,000
Australia	1,691,000	1,624,000	1,124,000
Great Britain	431,000	189,000	129,000
Canada	41,000	1,000	71,000
Netherlands	264,000	37,000	10,000
Total, including others	5,749,000	3,971,000	3,642,000

LOCAL PRODUCTION

The following statistics show the production of milk and milk products in Japan

MILK PRODUCTION IN JAPAN, 1924–1926

Year	Dairies	Milk cows	Milk produced	
			Quantity in gallons	Value in yen
Dairy production				
1924	5,256	42,555	20,256,300	22,747,890
1925	5,457	44,414	22,188,270	24,051,563
1926	5,610	45,258	24,483,046	22,676,896
Farm and other production				
1924	10,744	18,270	10,145,829	4,192,869
1925	11,764	21,034	11,272,656	4,409,739
1926	11,796	24,176	12,642,450	4,628,854

PRODUCTION OF DAIRY PRODUCTS IN JAPAN, 1924–1926

Product	1924		1925		1926	
	Quantity	Value	Quantity	Value	Quantity	Value
	Pounds	*Yen*	*Pounds*	*Yen*	*Pounds*	*Yen*
Condensed milk	21,457,082	6,869,398	20,680,186	6,159,949	23,443,606	6,321,581
Powdered milk					1,174,455	659,062
Butter	1,835,015	1,607,232	1,875,296	1,702,388	2,205,221	1,847,065
Margarine	723,706	271,345	662,540	158,477	1,362,786	345,733
Cheese	(1)	(1)	(1)	(1)	32,027	18,712
Others	1,492,575	1,169,272	1,468,856	1,374,272	4,658,074	662,426
Total	25,508,378	9,917,247	24,734,508	9,395,086	32,876,169	9,857,579

1 Figures not available

It will be noted that the production of condensed milk is increasing and that in 1926 powdered milk was shown for the first time as a domestic manufacture Production of butter and margarine is also increasing Cheese was manufactured in Japan prior to 1926, but statistics for that year are the only ones available There is no production of butter, cheese, condensed or powdered milk on the farms, the entire production in Japan coming from creameries or factories Ice-cream powder is produced only in small quantities and does not enter into statistics as a separate item

It is stated that no use is made of skim milk, buttermilk, and whey in the factories producing butter and cheese, but that these by-products are thrown away There seems no reason why the skim milk in butter factories could not be made into powdered milk and sold in this market, but as yet no one has started such an enterprise

SANITARY REGULATIONS

There are strict rules regarding the pasteurization of milk supplied in the city of Tokyo, which became effective October 1, 1928 The new regulations are a direct result of the discovery that many of the cattle from which the milk supply of Tokyo was secured were tubercular Other cities have not yet made such drastic regulations as hose of Tokyo, nor do they require pasteurization, but all cities have egulations regarding the preparation of milk for the market It is stimated that approximately 70 per cent of the total milk supply of Japan is sold as fluid milk

PACKAGING OF BUTTER

The production of butter is confined largely to Hokkaido, and the arge percentage, probably at least 80 per cent, is packed in tins, the emainder is packed in waxed cartons containing 1 pound Tins of utter come in quarter, half, and 1 pound sizes In 1927 approximately 360 metric tons of butter were imported, principally from Canada

ICE CREAM

Ice-cream production is small, but this commodity is growing in opularity, particularly in the cities The equipment used for delivery from the manufacturer to the dealer is a metal can packed in ice nd salt within a wooden tub

The production of dairy products is a comparatively new industry n Japan, and the equipment is comparatively modern and up to late It is estimated that probably 80 per cent of the machinery and quipment used in the dairy industry is produced locally Milk lants, as a general rule, use what is termed 200-gallon size equipment

PERIODICALS DEALING WITH DAIRY INDUSTRY

There are two magazines published in Japan which deal with the roduction of milk and dairy products Both of these are published nonthly in Japanese The subscription price is 6 yen a year The ames and addresses of the publishers of these two magazines are as ollows Chikugyo, Chikusankai, Tameike, Akasaka-ku, Tokyo, and The Dairy Times, Dairy Times Co , 1449 Shimoshibuya, Tokyo-fu

FIELD FOR DAIRY EQUIPMENT

It appears that there is a market in Japan for milk-plant equipment nd, to some extent, for machinery for use in the factories producing lairy products The names of the four importers of such equipment n Tokyo who might be approached by American suppliers may be ecured upon application to the Commercial Intelligence Division, Bureau of Foreign and Domestic Commerce, Washington, D C

Factory equipment used in Japan is chiefly of British and American rigin; a small quantity comes from Denmark American machinery s of good repute, and considerable quantities of machinery, such as asteurizers and coolers used in the milk stations, are now being imported from America Practically all milk sold in Japan is sold in alf-pint glass bottles and is delivered from the dairy to the customers ither by boys on bicycles or by men who pull small carts through the treets The milk is shipped from the producer to the distributor in ans similar to those in use in the United States It may be said, however, that most distributors of milk keep their own herd of cows and sell only the milk which they produce All milk is bottled, usually in the milk plants in the suburbs of the larger cities It is highly probable that in the country milk is sold in bulk, but there is no information available on this subject As has been stated before Tokyo is the only place at present where pasteurization of milk is practiced, but it is believed that this practice will extend in other parts of Japan The equipment used in Tokyo is largely from the United States

MALAYA

Don C Bliss, American Trade Commissioner, Singapore

Malaya offers practically no market for dairy equipment and supplies There are no statistics available regarding local production, but it is certainly negligible A few dairies are located in the vicinity of Singapore and other centers of population, but they are operated entirely by natives, usually Indians, who obtain a limited supply of milk from Indian cattle and buffaloes Imported cattle can not survive in this climate The milk produced is sold for the most part to the Chinese and native population, and probably some of it is used for the manufacture of ghee (clarified butter in oil form), but there is no production of butter or cheese It may be roughly estimated that in all British Malaya possibly 75 per cent of the milk produced is disposed of as fluid milk, but it reaches not more than 5,000 to 10,000 consumers No Europeans use this milk, and the European demand is met by condensed milk or by the reconstituted milk made from milk powder supplied by a local firm

MILK DELIVERY

The delivery of milk is usually handled by natives who peddle from brass jars To some extent the Chinese demand for milk is met by deliveries in bottles The Singapore Cold Storage Co delivers in bottles only

ICE-CREAM MANUFACTURE

The manufacture of ice cream in Singapore is restricted to the Singapore Cold Storage Co , which has a plant operated by an American, and it supplies all the requirements of hotels, restaurants, and households The usual American packing for delivery is effected by motor trucks

MARKET OUTLOOK

Since all the necessary equipment for distributing milk and ice cream is already on hand and replacements can not exceed a few hundred dollars a year at the outside, it is believed that this market does not merit present consideration as an outlet for dairy equipment and supplies

NETHERLAND EAST INDIES

Don C Bliss, American Trade Commissioner, Batavia

In the Netherland East Indies there are about 35 dairies, most of which are located in Java, and they produce milk from approximately 4,000 cattle imported from Holland or bred from imported stock These dairies supply fresh milk to the centers of population, especially Batavia, Bandoeng, and Surabaya There is a certain amount of government supervision, which takes the form principally of a weekly inspection, the results of which are published in the newspapers, each dairy being rated for cleanliness, richness of its milk, and other factors There is no control over the distribution of milk

Practically the entire production of milk is used for direct consumption as fluid milk, and there is no production of butter, cheese, or canned milk worthy of note In some cases the dairy farms which have a slight surplus of production turn it into butter, but the amount of such production is negligible There is no production of skim milk, buttermilk, or whey

DAIRY EQUIPMENT EMPLOYED

In the dairies the only treatment which milk receives is cooling promptly after milking, and for this purpose some dairies have a small cooling apparatus, but for the most part they rely upon simple refrigeration either from ice or from a small refrigerating plant. The milk is cooled in cans of ordinary size and is shipped in these cans to the points of distribution, either by rail or by motor truck

There is practically no bottling of milk in the dairies, and any bottling done is taken care of by distributors It is probable that most of the milk sold is distributed in bottles, either of the wide-mouth type used in the United States, or bottles with a spring cap and a small mouth All these bottles are obtained from Europe There is no pasteurization of milk, and a thorough cooling is relied upon to preserve it until it can be distributed and consumed

Practically all the butter consumed in this territory is imported from Australia, the Netherlands, or Denmark, most of it in tins, although there is some importation of bulk butter in cold storage

Ice cream is produced locally, but there is scarcely any shipped outside the cities where it is produced In Batavia and Surabaya there is some production of ice cream for sale to hotels and restaurants, and this is delivered in standard containers such as are used in the United States

In general, there is scarcely any market for dairy equipment in the Netherland East Indies, and a great proportion of the small demand that exists is supplied from European sources The Dutch dairy owners and others handling dairy products are very much prejudiced in favor of Dutch equipment, which they believe to be far superior to all other

NEW ZEALAND

Julian B Foster, American Trade Commissioner, and W L Lowrie, American Consul General, Wellington

New Zealand is primarily dependent upon its agricultural and pastoral industries for its existence Dairying and the wool industry are two of the main sources of industrial wealth

Of the total exports of New Zealand products, approximating annually a value of £50,000,000, the dairy industry accounts for approximately £12,000,000 or 25 per cent There has been a decided increase in the milk production in New Zealand during the past few years In 1918 there were only 710,561 cows in milk, at the end of 1927 the number increased to 1,181,545 cows Total production of milk in 1927 was approximately 6,466,254,175 pounds, and the increase in milk is largely reflected in New Zealand's increased exports of butter and cheese.

USES OF MILK

Of the total amount of milk produced in New Zealand it is estimated that approximately 7 per cent is used for direct consumption as fluid milk Of the total amount of butter produced in New Zealand 1,737,682 hundredweight, or approximately 98 per cent, is produced in creameries or factories, the other 2 per cent is produced on the farms Of the total amount of cheese (1,564,276 hundredweight) all is produced in factories Specific figures are not available to the general public with regard to quantities of condensed, evaporated, and powdered milk, and ice-cream powders produced in New Zealand Of the companies manufacturing these products the largest is the New Zealand Cooperative Dairy Co , with headquarters at Hamilton An estimate secured from reliable authorities indicates that the total value of the annual output of these products is well over £900,000

It is estimated that approximately 95 per cent of the skim milk, buttermilk, and whey is used for feeding stock or is wasted The remaining 5 per cent is used for the manufacture of by-products, such as casein

OUTPUT OF DAIRY FACTORIES

New Zealand ranks ninth in world production of butter, and seventh in production of cheese The North Island, with 82 3 per cent of the cows of the country, dominates the industry

Butterfat sent to factories during the year 1927–28 totaled approximately 234,500,000 pounds, of which 70 per cent was used in the manufacture of butter, 28 per cent for cheese making, and 2 per cent in dried and condensed milk The output of butter, by quantity, advanced 4 per cent, while cheese receded 1 per cent, but prices were good, and in point of value production increased by 13 and 19 per cent, respectively The value of output during recent years indicates the prosperous condition of the industry

VALUE OF NEW ZEALAND OUTPUT OF DAIRY PRODUCTS, 1925–26 TO 1927–28

Product	1925–26	1926–27	1927–28
Butter	£12, 407, 303	£12, 354, 344	£13, 988, 216
Whey butter	200, 554	182, 730	207, 212
Cheese	6, 331, 808	5, 566, 650	6, 640, 241
Other products	858, 834	918, 154	1, 024, 607
Total	19, 798, 499	19, 021, 878	21, 860, 276

DAIRY INDUSTRY IN NEW ZEALAND

Item	1926–27	1927–28	Item	1926–27	1927–28
Factories	507	500	Value of products	£19 ,021, 878	£21, 857, 276
Persons engaged			Motive power		
Males	3, 796	3, 954	Engines	1, 725	1, 779
Females	200	213	Horsepower	20, 304	20, 714
Total	3, 996	4, 167	Separators		
			At home	42, 053	43, 096
Operating expenses			At factory	606	584
Salaries and wages	£913, 242	£910, 491			
Milk and cream cartage	£238, 885	£281, 149	Total	42, 659	43, 680
Cost of butterfat (pay-out)	£14, 690, 868	£17, 671, 555	Value of plant		
			Land and Buildings	£2, 076, 418	£2, 135, 920
Cost of materials (boxes, rennet, etc)	£684, 733	£712, 430	Plant and machinery	£1, 837, 219	£1, 732, 314
Other operating expenses	£840, 477	£812, 082	Total	£3, 913, 637	£3, 868, 234
			Suppliers	54, 873	55, 947
Marketing expenses	£1, 037, 572	£1, 057, 479			

JOINT MARKETING SCHEME

An agreement has recently been concluded between Amalgamated Dairies (Ltd), of New Zealand, and the Australian Cooperative Federation (Ltd) for the purpose of placing sales of Australian and New Zealand butter and other produce in the hands of a single controlling organization in Great Britain This is described as the largest merger in dairy interests attempted in the British Empire with the object of combating the attempt of competing interests to oust butter from the markets of the world as a staple article of diet Fuller details of the important agreement between New Zealand cooperative dairy interests and similar Australian dairy interests show that the move is of an important and far-reaching character and is reported to be likely to have a notable bearing upon the internal organization of the dairy industry

The agreement now effected with Australia has been made the occasion for an important revision of policy on the part of Amalgamated Dairies in that connection It is announced that, on account of the Australian agreement, the directors of the New Zealand Cooperative Dairy Co (Ltd), and Amalgamated Dairies had decided to make some very important alterations in the policy of Amalgamated Dairies In the first place, a dairy council will be provided, to consist of the chairman of all companies entrusting produce for sale to the care of Amalgamated Dairies (Ltd) This council is to meet in Wellington or some other central place annually, or at any time in case of a crisis, and will, in addition to considering marketing problems, nominate three directors to the board of Amalgamated Dairies (Ltd) Two of these directors are to represent the North Island dairy factories and one to represent the South Island of New Zealand. Meetings are to be held at suitable centers in the North Island with the object of giving the directors of cooperative dairy companies the fullest information concerning the new scheme

As showing the magnitude of the interests involved, it is stated that the Overseas Farmers Cooperative Federation (Ltd) enjoyed sales for 12 months ended March 31 last, of £8,250,000 The turnover of the Amalgamated Dairies (Ltd), based principally upon the produce of the New Zealand Cooperative Dairy Co (Ltd), is approximately £6,000,000, thus concentrating in one organization primary produce of the value of nearly £15,000,000

The success of the Australian organization, instituted only eight years ago, is stated to have been outstanding, and the cooperation now effected will, among other things, permit specialized attention to retail marketing Associated with the marketing program of Empire Dairies will be the printing and distribution of butter in 1-pound and ½-pound pats, thus serving the dual purpose of establishing its identity and advertising the quality of oversea produce Both with bulk and pat butters, selling activities are to be concentrated upon developing the "one brand" idea

Another important feature of the marketing policy, it is reported, is the development of trade with the Midlands and north of England Decentralization will be an important factor, leading to an increase of direct shipments to provincial ports. The scheme is purely cooperative and, apart from limited interest on capital, the profits are to be returned to each country, therefore, neither Australia nor New Zealand can obtain any advantage at the expense of the other

DESTINATION OF EXPORTS

Great Britain continues to be the heaviest buyer of New Zealand dairy products, taking 80 per cent of the butter and 99 per cent of the cheese exported from the Dominion. A feature of the 1928–29 trade was the complete loss of the Australian market. In 1927–28 that country took 3,010 tons of butter from New Zealand and 547 tons of cheese. This loss is more than compensated, however, by the heavy increase in shipments of butter to Canada—12,322 tons, as compared with 6,592 in the preceding season.

New Zealand supplies Great Britain with 96 per cent of its imports of cheese but with only 34 per cent of its imports of butter, Denmark being the principal source of the latter commodity.

Exports for the 11 months ended June 30, 1929, compared with those for the same period of 1927–28 are shown in the next table.

New Zealand Exports of Butter and Cheese, 11 Months Ended June 30, 1928 and 1929

Destination	To June 30, 1928	To June 30, 1929	Destination	To June 30, 1928	To June 30, 1929
BUTTER	*Tons*	*Tons*	CHEESE	*Tons*	*Tons*
United Kingdom	57,411	60,929	United Kingdom	70,047	76,694
Canada	6,592	12,322	Australia	547	6
Australia	3,010	----------	Canada	52	136
United States	566	644	United States	----------	547
Hawaii	418	500	Other countries	96	26
Panama	75	167			
Other countries	419	713	Total	70,742	77,409
Total	68,491	75,275			

SANITARY SUPERVISION

Sanitary regulations regarding supervision in milk factories in New Zealand are very strict and have been generally satisfactory. The dairies supplying milk for local consumption must be registered and inspected. Periodic surprise inspection by the Department of Agriculture inspectors is practiced throughout the year. The health of the herd is under the supervision of trained veterinarians at all times. There is no registration with respect to the dairies supplying milk or cream for manufacturing purposes, but the greater portion of these dairies are under the inspection of a farm dairy inspector, who is an officer of the dairy division.

The faithfulness of the Government in administering dairy regulations is reflected in the high quality of New Zealand dairy products and the uniformity of manufacture throughout the entire Dominion. Grading of butter and cheese is systematically carried out, and this grading is accepted in world markets.

DISTRIBUTION

Fluid milk.—Until the last few years horse-drawn vehicles were generally used for delivering milk to the creameries and motor lorries for house-to-house delivery. This has changed, however, and at the present time by far the greatest percentage of milk, both for the creamery and home, is delivered in light motor trucks. Formerly the cheese factories made regular calls on the supplier to secure the milk, but in the majority of cases the supplier now brings his milk truck to the factory Metal cans are in general use, sizes varying from 8 to 25 gallons

The proportion of milk used in the home and delivered in bottles is very small, being only 25 per cent of the whole Various city councils have milk depots which provide most of the milk for the city, but the major portion of the milk used for consumption throughout the Dominion is not delivered in bottles That portion which is bottled is distributed after it has been pasteurized American bottling machinery and equipment are extensively used

Butter —Practically 80 per cent of the butter produced in New Zealand is exported It is placed in 1-pound pats, wrapped in parchment paper Cartons have not been used to any extent here, but it is thought that the public will shortly begin to appreciate the protective type of carton that is in use in other countries Several of the large creameries are now considering the use of American cartons, and a substantial increase may be expected in their sale

ICE-CREAM MANUFACTURE

The leading ice-cream plants in New Zealand are under the supervision of experts brought from the United States, and practically all the machinery utilized is of American make There is every indication that considerable expansion will take place shortly in the ice-cream trade Numerous inquiries are being made relative to American ice-cream machinery, packing methods, and cartons It would therefore be advisable for interested American suppliers to send catalogues and price lists to the office of the American Trade Commissioner, Dominion Building, Wakefield Street, Wellington

Ice cream is delivered from manufacturer to dealer by means of refrigerated vans Six have been imported from the United States, but these vans are now being made by local manufacturers Ice-cream cabinets, using ice and salt, and refrigerated cabinets are used by dealers to keep ice cream

GENERAL PROGRESS IN FACTORY EQUIPMENT

New Zealand has made considerable progress in the utilization of dairy equipment during the last few years Deodorization methods have been introduced, also improved pasteurization, and closer attention to all forms of sanitation Glass-lined vats and the latest types of machinery have been introduced The outlook of the dairy industry in New Zealand is better than it has been for a number of years

Imports of dairy equipment, as shown by the official New Zealand customs returns, amounted to £166,713 in 1928, as compared with £140,951 in 1926 and £109,552 in 1927 Sweden has been by far the chief source, supplying equipment, valued at £123,908 in 1928, which, incidentally, was more than double the total value supplied in 1927 The bulk of these imports is represented by cream separators Comparatively small amounts of dairy equipment come from the United Kingdom, Germany, Denmark, and the United States

The following table shows imports of dairy machinery by countries of origin, for 1928

VALUE OF IMPORTS OF DAIRY MACHINERY INTO NEW ZEALAND, 1928

Country	Churns	Coolers	Cream separators	Milk product machinery	Other	Total
Denmark	£1,666		1,107		2,951	5,724
Sweden	625		61,329		61,954	123,908
United Kingdom	84	5	10,473		10,562	21,124
Germany	6	230	3,981	869	4,217	9,303
United States	1,004		1,836	77	2,892	5,809
Other countries	82		307	67	389	845
Total	3,467	235	79,033	1,013	[1] 82,965	166,713

[1] Includes materials for and parts of milking machines

Considerable American box-making machinery is in use in creameries and in plants operated by their subsidiaries Practically every type of box-making machinery utilized by the larger factories in the United States may be seen This machinery is sold throughout New Zealand through the medium of manufacturers' agents and large wholesalers The names of the largest dealers specializing in machinery of this type may be secured upon application to the Commercial Intelligence Division, Bureau of Foreign and Domestic Commerce, Washington, D C

The managers of the New Zealand dairy industry are highly progressive They frequently make trips to the United States, England, and the Continent to investigate personally the latest improvements, and they lose no chance of taking advantage of these improved methods

It would be advisable for American suppliers of dairy equipment to keep in close touch with the Chief Dairy Inspector of the New Zealand Department of Agriculture, Wellington, who has done much toward placing the dairy industry in New Zealand on the high plane that it occupies to-day, and is in close touch at all times with factories in all sections of New Zealand

U. S. DEPARTMENT OF COMMERCE
R P LAMONT, Secretary
BUREAU OF FOREIGN AND DOMESTIC COMMERCE
WILLIAM L. COOPER, Director

THE CZECHOSLOVAK IRON AND STEEL INDUSTRY

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FOREWORD

The accompanying description of the iron and steel industry of Czechoslovakia—its equipment, production, and foreign trade—is the current chapter in the history of an iron industry which dates back to the sixth century It has, with the exception of certain periods when wars swept it temporarily out of existence, operated in much the same locations and on the same sites down the centuries

The present Czechoslovak industry, although not of the size and comparative importance of several other national industries of continental Europe, is the equal of any form the standpoint of efficiency of equipment and production The present output of 1,569,264 metric tons of pig iron and 2,151,000 tons of raw steel (1929) gives it a rank approximately equal to the industries of the Saar and Italy

Although a part of the former Austro-Hungarian industry, the present Czechoslovak industry is far more active in export trade In this connection it is interesting to note that even in its earliest history the industry was an exporter of its products—trading chiefly with eastern Europe At the present time exports amount to more than 730,000 tons annually and imports to 340,000 tons—the former including a wide range of products and reaching a large number of markets

Reports on the activity of the Czechoslovak industry are constantly reaching the iron and steel division of this bureau and the correspondence of interested parties is invited by that division

William L Cooper, *Director,*
Bureau of Foreign and Domestic Commerce

August, 1930

THE CZECHOSLOVAK IRON AND STEEL INDUSTRY

By Karl L Rankin, American Commercial Attaché, Prague

HISTORICAL OUTLINE

The presence of iron ores in Bohemia and Slovakia was known at a very early period and certain accounts state that smelting and forging were carried on in the vicinity of Prague during the sixth century In the Middle Ages the Bohemian iron industry attained considerable importance—local requirements were covered and certain iron products exported to eastern Europe The Turkish invasion after the fall of Constantinople served to cut off these foreign markets However, while the Hussite Wars and the Thirty Years War during the fifteenth and seventeenth centuries brought the embryo iron industry of Bohemia to a standstill, it was not until the eighteenth century that the medieval processes of iron manufacture were revived to any extent, but by that time the production of iron by these most primitive methods was again taken up in Bohemia, Moravia, and (Czechoslovak) Silesia Wrought iron was generally obtained directly from the ores and the early blast furnaces were fired with charcoal To-day there still remains one iron smelting plant in Slovakia (Mannesmann-Coburg Bergund Huttenwerks A G), which employs charcoal as fuel It is doubtless among the last survivors in Europe

COKE INTRODUCED IN 1831

Until the introduction of coke as fuel, iron smelting in Czechoslovakia was associated with forestry and practically all furnaces remained in the possession of large landed proprietors or of the Crown. In 1831 the first coke blast furnace was erected at Witkowitz in Moravia and during the subsequent hundred years the shift from charcoal to coke and from many small undertakings to a few large plants has been almost continuous At present about 98 per cent of Czechoslovakia's total production of pig iron is concentrated in three large iron and steel plants located in the two principal bituminous coal fields

CZECHOSLOVAK INDUSTRY DATES FROM 1918

The peace treaties signed after 1918 gave Czechoslovakia more than one-half of the iron and steel industry of Austria-Hungary. That Empire's total output of pig iron reached a prewar record in 1913 of 2,435,000 metric tons—slightly more than 50 per cent of which, or 1,228,000 tons, was produced in what is now Czechoslovakia. In 1919 the output of this portion of the Austro-Hungarian industry amounted to only 663,000 tons and in 1929 to 1,642,482 tons, the latter figure representing an increase of more than one-third above the prewar record

Steel output has shown more rapid development[1] The 1913 production of steel ingots and castings in the present territory of Czechoslovakia has been estimated at 1,237,000 tons (46 per cent of the total Austro-Hungarian production in that year) This output fell after the war to about 800,000 tons in 1919 but has since risen, almost without interruption, to a 2,151,340-ton total in 1929 This production places Czechoslovakia in the same rank with the Saar Basin and Italy as a producer of crude steel

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[1] Although available for pig iron, official production figures for steel do not exist for the years prior to 1928 Estimates have been obtained from various sources and care exercised in using the best

RAW MATERIALS

Czechoslovakia has large deposits of coal and iron ore, while limestone is also quarried in the vicinity of the principal smelters Unfortunately, however, no iron ore is located near the Ostrau-Karwin district in Silesia [2] where the only important quantities of coking coal are available

Two [3] of the three large Czechoslovak iron and steel plants are located there and obtain their ore from central Slovakia and from abroad The third large iron works [4] has plants at Kladno, Konigshof, and Althutten, all located not far apart and about 15 miles west of Prague, and formerly enjoyed the advantage of having coking coal, iron ore, and limestone all in close proximity The Kladno coal mines still rank second in output to those of Ostrau-Karwin, but the deposits of coking coal in the former have been exhausted and it must now be brought in from Silesia or from abroad

IRON ORE

Visible reserves of iron ore in Czechoslovakia are placed at 60,000,000 metric tons, while total reserves are estimated at 400,000,000 tons More than half of the present output is mined in south central Slovakia (931,686 metric tons in 1928), where the siderite and hematite produced showed an average iron content of 32 82 per cent in 1928 Only negligible quantities of this ore are now smelted with charcoal at the mines, the bulk of it going to the two large iron works of the Ostrau-Karwin district, while about one-fourth is exported to Hungary

The mining of pyrites is confined to Slovakia—the 1928 output totaling 23,626 tons, which contained 34 per cent of iron and 39 50 per cent of sulphur Iron ore produced in Bohemia during 1928 totaled 847,490 tons—nearly all being taken from the Nutschitz mines of the Prague Iron Works, located a few miles south of the company's Kladno smelters This ore is a chamosite of high phosphorous content and showed 31 per cent of iron during 1928

Prior to the war production of iron ore in the present territory of Czechoslovakia had shown a steadily increasing tendency and had amounted to 2,190,900 tons in 1913 Since the establishment of the Republic in 1918, however, domestic ore production has never regained pre-war levels In 1928 a total of 1,779,176 tons of iron ore (not including 23,626 tons of pyrites) were produced by 26 mining establishments employing 6,896 workers Because of its low quality the greater part of this domestic ore must be roasted and this factor has been important in stimulating imports of ores from abroad. Since 1922 both domestic output and imports have increased rapidly.

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[2] The rich Silesian beds of bituminous coal are divided among Germany, Poland, and Czechoslovakia

[3] Witkowitz Mines Steel & Iron Works Corp at Witkowitz and the Czechoslovak Mining & Iron Works Co at Trzynietz

[4] The Prague Iron Works at Kladno, near Prague,

PRODUCTION AND CONSUMPTION OF IRON ORE IN CZECHOSLOVAKIA

[Thousands of metric tons]

Year	Domestic production[1]	Exports	Imports	Indicated consumption	Pig iron production
1913	2,191	([2])	([2])	([2])	1,228
1919	983	([2])	([2])	([2])	663
1920	1,053	54	656	1,655	737
1921	835	95	561	1,301	577
1922	322	145	318	495	335
1923	675	102	1,065	1,638	817
1924	1,190	128	1,003	2,065	983
1925	1,251	84	1,084	2,251	1,166
1926	1,443	182	1,034	2,295	1,088
1927	1,624	282	1,067	2,409	1,260
1928	1,803	324	1,669	3,148	1,569
1929	[3] 1,808	352	2,079	[3] 3,535	1,642

[1] Including pyrites [2] Not available [3] Preliminary

After deducting exports from domestic production and allowing for the higher iron content of imported ores, it is apparent that the Czechoslovak iron industry is becoming increasingly dependent upon foreign countries for its supply of iron ore. As in the pre-war period Austria is still a large supplier, but is now less than half as important as Sweden. The Witkowitz Corporation has its own Swedish mines and is able to bring this higher quality ore from the Baltic area down the Oder River to within a short distance of their principal works. The neighboring plants of the Czechoslovak Mining & Ironworks Co. enjoy a similar advantage.

IMPORTS OF IRON ORE BY COUNTRIES IN 1928

[Thousands of metric tons]

Country	Pyrites	Calcined pyrites	Other iron ores	Total
Sweden	5	52	538	595
Austria	---------	36	231	267
Russia	---------	1	171	172
Yugoslavia	---------	14	131	145
Spain	103	---------	6	109
Poland	8	10	55	73
Germany	16	50	3	69
Other countries	79	53	107	239
Total	211	216	1,242	1,669

It is evident, therefore, that in spite of Czechoslovakia's large deposits of iron ore, good transportation facilities, and the superior quality of certain foreign ores are giving the latter a preponderant place in the country's iron industry.

FUEL AND LIMESTONE

Czechoslovakia has large coal resources and the important Ostrau-Karwin Basin in Silesia produces good coking coal in quantities more than sufficient to cover domestic requirements. Coke output from bituminous Silesian coal totaled 3,159,850 metric tons in 1929, of which 581,250 tons were produced by the iron works themselves. By-product ovens are in general use.

Adequate quantities of limestone are available near the two principal iron-producing centers of Mahrisch-Ostrau and Kladno.

PRODUCTIVE CAPACITY

Czechoslovakia's capacity for producing pig iron has not increased notably since 1913, when output totaled 1,228,000 metric tons, but there has been a steady concentration of production in the hands of the three large iron and steel companies In 1928 fifteen blast furnaces belonging to three companies produced nearly 98 per cent of the country's output of pig iron—1,535,835 tons out of a total of 1,569,264 tons The same three companies are allotted by the Continental Steel Entente 83 per cent of Czechoslovakia's steel production which reached a record of 2,151,340 metric tons in 1929 as compared with a pre-war maximum of 1,237,000 tons attained in 1913 Three most striking features of this development are (1) The concentration of production in the plants of these three large companies, and (2) the remarkable increase in steel output

While the total capacity of Czechoslovak blast furnaces in 1928 was officially placed at slightly over 2,000,000 metric tons of pig iron, indicating a rate of operation of about 76 per cent, a truer picture of the situation is obtained by disregarding the smaller iron works

BLAST FURNACES PRODUCING 98 PER CENT OF CZECHOSLOVAK PIG IRON IN 1928

Daily capacity per furnace (metric tons)	Number of furnaces	Total daily capacity (metric tons)	Number of furnaces in blast	Days in blast	Per cent days in blast
100-200	6	1,021	3	717	60
200-300	5	1,370	5	1,767	97
300-400	4	1,500	4	1,413	97
400-500	2	920	2	655	90
550	1	550	1	362	99
Total	18	5,361	15	4,914	----------

It will be observed from the above figures that all of Czechoslovakia's 12 blast furnaces with individual capacities of more than 200 tons operated at a very high rate during 1928 Theoretical consideration of total capacity in relation to actual production may therefore be misleading if size, age, and location of blast furnaces be left out of account In 1929 pig-iron production increased by nearly 5 per cent over the previous year or to a total of 1,642,482 metric tons This latter figure may be taken as representing very nearly the present effective pig-iron capacity of the Czechoslovak industry Similarly in the case of steel, the all-time production record in 1929 of 2,151,340 metric tons of ingots and castings may be considered very close to effective capacity In contrast to the relatively small increase in pig-iron output above pre-war levels, however, steel production in 1929 was nearly 75 per cent above 1913, the best pre-war year, and total capacity has risen in about the same proportion Czechoslovak steel furnace equipment at the close of 1928 is shown in the table following

NUMBER OF STEEL FURNACES AT THE END OF 1928

Capacity per furnace (metric tons)	Converters		Open-hearth		Electric	Crucible
	Bessemer (acid)	Thomas (basic)	Acid	Basic		
0 1–5	2		4	6	7	6
6 –10			5	1	3	
11 –15		5	3	6	1	
16 –20			1	6		
21 –25				6		
26 –30				18		
31 –40			1	7		
41 –50			1	1		
51 –60				2		
61 –70				1		
71 –80				2		
81 –90						
91 –100				2		
101 –150						
151 –200				4		
Total	2	5	15	62	11	6

PRODUCTION

PIG IRON

Output of pig iron in the present territory of Czechoslovakia during the 10 years prior to the war (1904–1913 inclusive) averaged 837,000 metric tons annually and attained a maximum of 1,242,000 tons in 1912 The lowest point after the war was reached in the last inflation year (1922), when the pig-iron output amounted to only 335,000 tons Since then production has increased steadily except for one slight setback in 1926 and during each of the past three years (1927–1929) the output has been above the pre-war maximum

BLAST FURNACES, PIG IRON PRODUCED, ORE CONSUMED

Year	Total furnaces	Average number of furnaces in blast	Pig iron production (1,000 metric tons)	Indicated iron ore consumption [1] (1,000 metric tons)
1913	(2)	(2)	1,225	(2)
1914	(2)	(2)	925	(2)
1915	(2)	(2)	953	(2)
1916	(2)	(2)	1,218	(2)
1917	(2)	(2)	1,061	(2)
1918	(2)	(2)	781	(2)
1919	34	17	663	(2)
1920	34	23	737	1,655
1921	35	21	577	1,301
1922	35	8	335	495
1923	34	14	817	1,638
1924	31	16	983	2,065
1925	26	14	1,166	2,251
1926	26	16	1,088	2,295
1927	25	15	1,260	2,409
1928	23	17	1,569	3,148
1929	23	(2)	1,642	[3] 3,535

[1] Production plus imports minus exports [2] Not available [3] Preliminary

In 1913 the present territory of Czechoslovakia produced 1,228,000 tons of pig iron and ferro-alloys out of a world total of approximately 78,000,000 tons, to which the United States contributed 31,490,000 tons, Germany 19,312,000, Great Britain 10,428,000, France 5,207,000, Russia 4,629,000, and Belgium 2,485,000. In 1920 the world total production was about 61,840,000 tons, of which Czechoslovakia contributed less than 730,000 tons, the United States 37,528,000, Great Britain 8,165,666, Germany 6,387,625, France 3,344,414, and Belgium 1,116,400 tons. Between 1920 and 1929 Czechoslovakia increased its proportion of the world total from 1.18 per cent to 1.82 per cent. In 1913 the present territory of Czechoslovakia accounted for 1.55 per cent of world pig-iron output.

WROUGHT IRON

Prior to the introduction of cheap processes for making mild steel the qualities of wrought iron made it the most important metal for structural and mechanical uses. Its strength, ductility, toughness, and resistance to corrosion, in addition to the ease with which it could be forged and welded, made it extremely satisfactory for many purposes. The invention of the Bessemer converter in 1855 and of the Siemens-Martin open-hearth furnace in 1867 made it possible for steel gradually to replace wrought iron for most purposes. In 1928 the Czechoslovak production of wrought iron was only 12,740 tons and of malleable cast iron 7,849 tons.

STEEL OUTPUT COMPARED WITH PIG-IRON CONSUMPTION AND IMPORTS OF SCRAP

[Thousands of metric tons]

Year	Pig-iron production	Net pig-iron imports [1]	Net scrap-iron imports	Production of steel ingots and castings
1913	1,228	(2)	(2)	1,237
1919	663	(2)	(2)	800
1920	737	10	24	975
1921	577	−24	61	918
1922	335	−31	171	750
1923	817	−100	143	1,250
1924	983	7	95	1,200
1925	1,166	21	118	1,360
1926	1,088	20	68	1,275
1927	1,260	−6	136	1,500
1928	1,569	4	205	1,973
1929	1,642	6	277	2,151

[1] Minus sign indicates net exports.

[2] Not available.

STEEL

The output of steel in the present territory of Czechoslovakia reached its pre-war maximum in 1913 with a total production of 1,237,000 tons of ingots and castings. This is approximately equal to the pig-iron output of 1,228,000 tons for the same year. Since the war, however, steel production has mounted much more rapidly than has that of pig iron. In 1929 pig-iron output was 1,642,482 tons, as compared with 2,151,340 tons of steel. Increased use of domestic and imported scrap iron has been the most important factor in increasing the differential between pig-iron and steel production, but in recent years Czechoslovak imports of pig iron have usually run somewhat ahead of exports. In 1929 net imports amounted to 7,650 metric tons. In the case of scrap iron Germany is the most important source of supply, while Austria is the chief source of pig-iron imports, the latter being confined to forge pig.

In 1928, the only year so far for which complete data are available, net imports accounted for over 36 per cent of the total scrap-iron consumption.

The following raw materials were consumed in the manufacture of steel, wrought iron, and malleable cast iron in 1928:

	In metric tons		In metric tons
Pig iron	1, 327, 008	Ferrosilicon	3, 793
Scrap	764, 022	Other metals	3, 366
Ferromanganese	13, 927	Burned magnesite	6, 287
Spiegeleisen	5, 956	Iron ore	172, 205

As in the case of materials consumed, 1928 is the only year to date for which fairly complete official data are available regarding Czechoslovak steel production. The preponderant place now occupied by the basic open-hearth process is emphasized by the actual production figures:

PRODUCTION OF STEEL BY PROCESSES IN 1928

[In metric tons]

Process	Ingots	Castings	Waste	Total
Bessemer (acid)		244	29	273
Thomas (basic)	261, 890			261, 890
Open hearth (acid)	23, 142	12, 852	4, 333	40, 327
Open hearth (basic)	1, 572, 162	19, 479	2, 283	1, 593, 924
Electric	55, 978	13, 117	7, 496	76, 591
Crucible	72	2		74
Total	1, 913, 244	45, 694	14, 141	1, 973, 079

In 1913 the present territory of Czechoslovakia produced 1,240,000 metric tons of steel out of a world total of 74,680,000 tons, of which the United States contributed 31,640,000 tons, Germany 18,935,000, Great Britain 7,789,000, France 4,687,000, and Belgium 1,253,000 tons. In 1920 the world total was 71,100,000 tons, of which Czechoslovakia contributed only 960,000 tons while the United States produced 42,820,000 tons, Germany 8,537,000 tons, Great Britain 9,215,000 tons, France 2,706,000 tons, and Belgium 1,253,000 tons. Since 1920 there has been a general increase in steel production in nearly all countries, Czechoslovakia showing in 1928 a gain of more than 100 per cent over 1920. In 1913 the present territory of Czechoslovakia accounted for 1.62 per cent of the world total steel production, in 1920, 1.35 per cent, and in 1928, 1.82 per cent. Curiously enough this last figure also represents quite exactly Czechoslovakia's proportion of world pig-iron output in the same year. The ratio of the country's output of iron to that of steel has followed the world trend very closely, although since 1913 Czechoslovakia has increased its proportion of world total steel production by more than 12 per cent (1.62 per cent to 1.82 per cent of world output).

Detailed statistics covering Czechoslovak output of finished iron and steel products have never been compiled. In recent years, however, exports of finished steel manufactures have ranged up to one-third (by weight) of the country's consumption of steel ingots and castings, so that the export figures give considerable insight into the variety and quality of production.

FOREIGN TRADE

In 1913 the total foreign trade of Austria-Hungary in iron and steel products was valued at less than $21,000,000 while in 1929 Czechoslovakia alone recorded imports and exports in the same commodity group to the extent of $76,000,000. Changes in price levels account for only a minor part of this increase, the principal factor being that the peace treaties gave Czechoslovakia more than half of the Austro-Hungarian iron and steel industry, but only about one-fourth of the Empire's population as a domestic market. A large portion of what is now foreign trade for the Czechoslovak industries was domestic trade before the war and the Succession States continue to play a very important part as countries of origin and destination in the Czechoslovak iron and steel trade. Imports are mostly confined to raw materials while exports of iron and steel products include a great variety of manufactured articles. The average value of 1929 exports per ton was one-third higher than for imports, while the total value of exports for the same year was nearly two and one-half times as great as that of imports.

The following table compares the tonnage and value of the foreign trade since 1920, the first year for which detailed statistics were compiled.

CZECHOSLOVAK IMPORTS AND EXPORTS OF IRON AND STEEL PRODUCTS [1]

Year	Imports		Exports	
	Metric tons	Thousands of crowns [2]	Metric tons	Thousands of crowns [2]
1920	114,790	929,595	163,927	1,511,288
1921	122,848	540,757	203,481	1,368,518
1922	219,859	430,320	196,374	768,055
1923	187,290	294,401	566,443	968,221
1924	202,420	386,152	415,771	1,079,782
1925	240,774	497,712	516,157	1,231,248
1926	179,660	422,204	480,173	1,253,939
1927	272,998	518,850	722,721	1,619,331
1928	341,079	633,976	733,050	1,770,198
1929 [3]	421,808	761,303	731,854	1,802,160

[1] Not including machinery or instruments.

[2] One crown equals $0.02964 since stabilization prior to beginning of 1923. Average rates for earlier years are: 1920, $0.0157; 1921, $0.0126; 1922, $0.0212.

[3] Preliminary figures.

IMPORT TRADE

Czechoslovak imports of iron and steel have followed closely the rate of operation in the country's steel plants. In 1929 two-thirds of the total imports by weight consisted of iron, steel, and tin-plate scrap—receipts of which amounted to 282,201 metric tons as compared with only 29,429 tons in 1920. In contrast to these large imports of scrap, Czechoslovak purchases of other iron and steel products are relatively unimportant. Imports of ferro-alloys are second to those of scrap in value and a moderate quantity of pig iron for refining and puddling is purchased from Austria. Otherwise items in the import trade are largely incidental and are greatly exceeded by exports in the same commodity classifications.

CZECHOSLOVAK IMPORTS OF IRON AND STEEL PRODUCTS

[Metric tons]

Product	1920	1927	1928	1929 [1]
Foundry pig iron	36,447	24,548	24,666	26,879
Forge pig iron	271	32,185	31,198	30,294
Scrap	29,429	139,252	206,232	282,201
Ferro alloys	3,602	16,886	17,567	22,687
Filings and hammer slag	375	19,171	15 811	11,754
Billets, blooms, and sheet bars	2,317	387	584	591
Bars and rods	8,684	9,164	8,721	8,289
Plates and sheets	8,501	11,053	12,423	12,088
Wire	3,997	4,291	4,818	4,764
Pipes and tubes	790	1,516	1,973	2,392
Sheet-iron products	(2)	2,144	2,791	4,087
Implements and tools	(2)	1,884	1,977	2,150
Other items	20,377	10,517	12,318	13,632
Total	114,790	272,998	341,079	421,808

[1] Preliminary figures

[2] Included under "Other items"

The table below shows the development of imports of iron and steel products according to countries of origin Germany supplied over 45 per cent of the total imports by weight and nearly 54 per cent by value in 1929 Great Britain and Austria ranked next, while imports from the United States were comparatively unimportant

CZECHOSLOVAK IMPORTS OF IRON AND STEEL PRODUCTS BY COUNTRIES OF ORIGIN

[In metric tons]

Imported from—	1920	1927	1928	1929 [1]
Germany	39,920	88,228	159,119	193,204
Great Britain	4,281	19,203	31,753	52,584
Austria	45,655	59,996	62,294	44,466
Denmark	(2)	5,954	15,007	34,526
Belgium and Luxemburg	(2)	15,226	3,971	18,275
Sweden	(2)	24,243	20 515	14,068
Poland	(2)	13,956	10,045	11,358
Norway	(2)	3,659	6,555	9 801
United States	1,738	665	1,212	6,817
Netherlands	(2)	5,943	755	4,714
Yugoslavia	(2)	3,578	4,023	3,983
Switzerland	(2)	10,716	3,001	3,076
Hungary	1,514	1,426	1,742	2,758
France	1,687	5,375	2,498	1,346
Russia	(2)	9,522	2,373	660
Italy	119	80	149	277
Other countries and unallocated	19,806	5,198	13 039	19,895
Total	114,790	272,998	341,079	421,808

[1] Preliminary figures

[2] Not available separately and included under "Other countries"

An analysis of Czechoslovak imports of iron and steel products, both by commodities and by countries of origin, serves further to emphasize the predominant part played by Germany in Czechoslovak import trade Not only is Germany the chief source of imports for raw materials and semimanufactures, but considerable quantities of German manufactured products of iron and steel are also purchased by Czechoslovakia Of the more important countries figuring in the Czechoslovak iron and steel trade, Germany has the distinction of being the only one whose balance of trade is not heavily in favor of Czechoslovakia

Shipments of iron and steel from the United States to Czechoslovakia are small, the chief item in 1928 being 956 metric tons of pig iron.[5]

CZECHOSLOVAK IMPORTS OF IRON AND STEEL PRODUCTS BY COMMODITY AND COUNTRY IN 1928

[In metric tons]

Imported from—	Foundry pig iron	Forge pig iron	Scrap	Ferro alloys	Filings and slag	Other items	Total	
							Metric tons	1,000 crowns
Germany	4,513	-------	116,976	4,389	8,001	25,240	159,119	340,314
Austria	640	23,179	21,801	2,391	3,956	10,327	62,294	111,157
Great Britain	6,403	7,529	16,870	1,418	41	2,492	34,753	41,564
Sweden	8,879	422	9,330	1,302	62	520	20,515	36,861
Denmark	135	-------	14,492	-------	378	2	15,007	8,663
Poland	28	-------	3,640	3,729	-------	2,646	10,043	17,713
Norway	-------	-------	3,526	3,029	-------	-------	6,555	8,450
Yugoslavia	-------	-------	484	863	2,034	642	4,023	5,360
Belgium and Luxemburg	192	-------	3,010	-------	-------	769	3,971	12,319
Switzerland	70	-------	2,505	159	-------	267	3,001	9,327
France	993	-------	292	269	-------	944	2,498	17,647
Russia	-------	-------	1,314	-------	1,008	51	2,373	1,272
Hungary	-------	-------	654	-------	-------	1,088	1,742	3,895
United States	[1] 956	-------	24	-------	-------	262	1,242	6,799
Netherlands	-------	-------	677	-------	-------	78	755	1,214
Italy	-------	-------	126	-------	-------	23	149	502
Other countries and unallocated	1,857	68	10,511	18	331	254	13,039	10,919
Total (metric tons)	24,666	31,198	206,232	17,567	15,811	45,605	341,079	-------
Total value (1,000 crowns)	24,137	23,254	112,088	55,703	6,198	412,596	-------	633,976

[1] See footnote 5 below.

EXPORT TRADE

After the stabilization of the currency in 1922, Czechoslovak exports of iron and steel products increased rapidly, reaching 722,721 metric tons in 1927. The next two years showed little change in export tonnage, but the value increased measurably in 1928 over the previous year while 1929 recorded a further gain. During the past three years (1927–1929) increased domestic consumption has been the dominant factor in the continued increase in production and imports, but the export trade has nevertheless remained at a very satisfactory level. Pig iron exports have shown a declining tendency as a result of largely increased domestic consumption and shipments of billets have also fallen off in recent years. The increased exports of bars and rods alone, however, have offset these declines, while in the other principal classifications the 1927 rate has been rather closely maintained.

The following table shows the trend of Czechoslovak iron and steel exports in recent years as compared with 1920. To permit comparisons the same commodity classifications have been used as in the corresponding table covering the import trade.

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[5] This statement appears in the original report by Commercial Attache Rankin and is from a Czechoslovak source. United States export statistics do not show any such shipment—exports of pig iron in 1927 having amounted to 50 gross tons, with no shipments shown in either 1928 or 1929.

CZECHOSLOVAK EXPORTS OF IRON AND STEEL PRODUCTS

[In metric tons]

Product	1920	1927	1928	1929[1]
Foundry pig iron	25, 250	62, 678	50, 925	49, 243
Forge pig iron	1, 421	29	500	280
Scrap	3, 818	220	79	2, 315
Ferro-alloys	37	45	31	42
Filings and hammer slag	394	95	6	169
Billets, blooms, and sheet bars	3, 033	89, 575	57, 502	51, 259
Bars and rods	32, 054	112, 566	118, 794	164, 095
Plates and sheets	14, 117	160, 283	176, 185	155, 281
Wire	7, 103	57, 071	57, 845	65, 985
Pipe and tubes	17, 742	139, 993	131, 946	125, 941
Sheet iron products	(2)	14, 881	15, 098	15, 461
Implements and tools	(2)	2, 411	2, 419	2, 582
Other items	58, 958	82, 674	118, 660	99, 201
Total	163, 927	722, 721	733, 050	731, 854

[1] Preliminary figures [2] Included under "Other items"

In view of the relative unimportance of iron and steel exports from pre-war Austria-Hungary the development of Czechoslovakia's export trade has been remarkable The chief markets still include the other Succession States, but Czechoslovak iron and steel products are now shipped in important quantities to many parts of the world The following table gives a picture of the wide distribution of this trade although it will be noted that exports to the United States are ordinarily quite insignificant Of the chief markets Germany alone has shown a large drop in imports from Czechoslovakia during each of the last two years.

CZECHOSLOVAK EXPORTS OF IRON AND STEEL PRODUCTS BY COUNTRIES OF DESTINATION

[In metric tons]

Exported to—	1920	1927	1928	1929[1]
Russia	(2)	53, 321	107, 941	97, 485
Austria	58, 471	74, 446	81, 266	94, 493
Rumania	(2)	106, 365	94, 724	92, 479
Great Britain	396	64, 431	57, 797	64, 356
Yugoslavia	(2)	32, 137	57, 825	44, 215
Italy	9, 624	36, 863	25, 129	40, 938
Germany	14, 186	86, 279	65, 168	39, 846
Hungary	13 221	34, 544	31, 291	33, 101
Bulgaria	(2)	16, 463	26, 361	28, 131
Switzerland	(2)	22, 052	26, 790	24, 037
Denmark	(2)	21, 051	16, 016	18, 170
Sweden	(2)	19, 530	17, 176	17, 710
India and Ceylon	(2)	20, 261	16 359	14, 019
Poland	(2)	11, 766	10, 053	12, 028
Argentina	(2)	13, 597	8, 949	11, 025
Turkey	(2)	5, 928	7, 253	7, 674
Netherlands	(2)	5, 963	6, 769	7, 242
Netherlands Asiatic possessions	(2)	8, 232	5, 960	(2)
Finland	(2)	6, 690	5 496	(2)
China	(2)	2, 855	5, 316	(2)
Brazil	(2)	2, 582	1, 939	4, 945
Japan	(2)	6, 913	4, 706	(2)
United States	112	10, 019	1, 242	3, 535
Greece	(2)	1, 624	2, 809	3, 437
Norway	(2)	3, 651	6, 463	3, 360
Other British Asiatic possessions	(2)	2, 517	3, 096	(2)
British South Africa	(2)	2, 206	2, 636	2, 908
Chile	(2)	1, 590	2, 538	(2)
Peru	(2)	4, 652	2, 510	(2)
Egypt	(2)	1, 811	1, 264	2, 296
Latvia	(2)	4, 018	1, 847	2, 139
France	1, 192	1, 144	1, 622	1, 968
Spain	(2)	2, 323	2, 856	1, 791
Uruguay	(2)	872	1, 553	(2)
Australia	(2)	1, 181	1, 278	1, 287
Other countries and unallocated	66, 725	32, 844	21, 052	57, 239
Total	163, 927	722, 721	733, 050	731, 854

[1] Preliminary figures [2] Not available separately and included under "Other countries"

But although Czechoslovakia exports iron and steel products to many foreign markets, nearly 90 per cent by weight and 75 per cent by value is shipped to 14 countries, of which all are located in Europe, with the exception of British India The great variety of manufactured articles involved makes it difficult to include an adequate survey of Czechoslovak iron and steel exports by commodity and by country of destination within the limits of a table, but the more important items are shown in the following analysis

CZECHOSLOVAK EXPORTS OF IRON AND STEEL PRODUCTS BY COMMODITY AND COUNTRY IN 1928

[Metric tons]

Exported to—	Foundry pig iron	Billets, blooms, sheet bars	Iron and steel bars and rods		Black iron and steel sheets		Rails	Plain iron or steel wire
			Plain	Shaped	2 mm thick or more	Under 2 mm		
Russia	-------	651	22,013	4,913	42,419	3 592	-------	5,490
Rumania	14,828	16,425	15,117	3,310	3,922	2,802	497	2,791
Austria	9,462	2,261	2,185	1,368	21,517	5,408	22	641
Germany	66	28,752	9,857	1,535	82	135	-------	5,197
Yugoslavia	2,060	20	2 286	1,555	2,284	6,713	21,862	1,101
Great Britain	20	5,926	14,003	3,211	5,163	95	-------	8,062
Hungary	22,867	144	442	67	213	827	488	46
Switzerland	-------	2,590	2,975	239	3,590	2,802	-------	3,828
Bulgaria	1,155	-------	15 484	1,812	742	2,353	36	1,672
Italy	253	4	2,597	2,382	11,584	975	4	1,626
Sweden	-------	122	357	1,070	2,912	5,079	-------	1,287
India and Ceylon	-------	-------	260	2	-------	-------	-------	893
Denmark	-------	-------	336	2,410	6,804	1,618	-------	1,459
Poland	213	31	545	90	1,333	-------	168	415
Other countries and unallocated	1	636	5,578	792	5,156	4,367	1	16,888
Total (metric tons)	50,925	57,562	94,035	24,759	107,721	36,796	23,078	51,396
Total value (1,000 crowns)[1]	34,469	62,128	151,235	26,224	119,428	64,411	26,544	65,476

Exported to—	Wire nails	Plain malleable iron pipe	Finished malleable iron pipe	Enameled household wate	Other items	Total	
						Metric tons	Value in 1,000 crowns[1]
Russia	-------	21,005	8	-------	7,850	107,941	167,687
Rumania	223	18,244	1,219	168	15,178	94,721	176,236
Austria	69	14,516	3,643	192	19,982	81,266	173,313
Germany	70	6,237	947	723	11 564	65,168	147,600
Yugoslavia	188	2,561	664	51	16,450	57,825	139,757
Great Britain	2,603	11,204	3,006	373	4,131	57,797	118,586
Hungary	-------	1,364	7	565	4,261	31,291	53,187
Switzerland	43	2,639	391	-------	7,693	26 790	62,747
Bulgaria	179	585	156	117	2,070	26,361	35,953
Italy	87	489	62	382	4,684	25,129	59,080
Sweden	-------	1,619	204	-------	4 526	17,176	32,066
India and Ceylon	6,292	1,749	71	2,021	5,071	16,359	62,570
Denmark	17	832	202	-------	2 338	16,016	26,662
Poland	14	162	-------	3	7 079	10,053	55,380
Other countries and unallocated	11,428	22 824	2,588	7,193	21,702	99,154	459,374
Total (metric tons)	21,213	106,030	13,168	11,788	134,579	733,050	-------
Total value (1,000 crowns)[1]	34,121	275,585	36,572	121,980	751,725	-------	1,770,198

[1] One Czechoslovak crown equals $0 02964

THE CZECHOSLOVAK INDUSTRY

EMPLOYMENT

As a result of almost continuous prosperity since the end of the inflation period in 1922, the Czechoslovak iron and steel industry has required the services of a steadily increasing number of employees Figures for several branches of the industry are not available, but the following data for steel and pig-iron production, and iron-ore mining, give an index to conditions in the industry as a whole

NUMBER OF EMPLOYEES ENGAGED IN PRODUCTION OF STEEL INGOTS AND CASTINGS IN 1928 [1]

Classification	Average for 1928	Actual at end of 1928
Ordinary workmen	6, 290	6, 551
Foremen and skilled workmen	188	191
Administration and others	219	239
Total	6, 697	6, 981

[1] 1928 is the only year for which official figures are available

In addition to employment data, a few figures regarding wages are included in the following table

AVERAGE NUMBER OF EMPLOYEES AND AVERAGE WAGES PAID IN IRON-ORE MINES AND IN PIG-IRON PRODUCTION

Year	Iron ore mines		Blast furnaces	
	Number of employees	Wages per 8 hour shift in crowns [1]	Number of employees	Wages per 8 hour shift, in crowns [1]
1923	3, 692	24 95	2, 117	(2)
1924	4, 714	24 30	2, 483	(2)
1925	5, 062	27 20	2, 604	27
1926	5 781	27 15	2, 577	26
1927	6, 182	27 75	2, 706	(2)
1928	6, 635	28 95	2, 119	(2)

[1] One crown equals $0 02964

[2] Not available

The manufacture of iron and steel requires experienced workmen, but most of these need not be highly skilled This accounts in part only, however, for the comparatively low wages indicated in the foregoing table The average earnings per man are barely $0 10 per hour or less than $5 per 48-hour week, the maximum working period permitted by law While these wage figures are from official sources, it is understood that the employees actually receive considerably more, while compulsory social insurance also adds to labor costs Among the additional forms of remuneration for employees are special bonuses and living quarters furnished by the employer at cost or less Altogether these items probably bring the average wage to well over $1 per 8-hour day, placing wages in the Czechoslovak iron and steel industry on approximately the same levels as obtain in Belgium and Luxemburg The trade-union movement is highly developed in the Czechoslovak industry and nearly all wage scales now in force are products of collective bargaining. Serious labor disputes have been rare in recent years.

ECONOMIC CONDITIONS

PRICE LEVELS

With so large an export trade Czechoslovakia could not avoid being affected by world-price levels in iron and steel products. Since the stabilization of the currency, however, iron and steel producers have been able, by agreement, to maintain without change domestic prices of pig iron, steel ingots, bars, sheets, tool steel, and of products in certain other lines. The table shows the relation of iron and steel prices to the general wholesale price index and the workmen's cost of living.

COMPARISON OF IRON AND STEEL PRICES TO GENERAL PRICE LEVELS

[July, 1914=100]

Year	Pig iron index	Steel ingot, bar and sheet index	Tool steel index	General wholesale price index	Steel ingot index as per cent of wholesale index	Workmen's cost of living index
1923	107.5	114.5	221.5	143	80	99.6
1924	107.5	114.5	221.5	146	78	99.8
1925	107.5	114.5	221.5	147	78	105.3
1926	107.5	114.5	221.5	139	82	104.4
1927	107.5	114.5	221.5	143	80	109.2
1928	107.5	114.5	221.5	143	80	109.4
1929	107.5	114.5	221.5	135	85	108.7

FINANCIAL RESULTS

The important Czechoslovak iron and steel producing companies are large organizations with highly diversified interests. In addition to the production of iron and steel semimanufactures, all have large coal-mining properties, while other lines engaged in include the production of coke, benzol, bricks, cement, and a variety of manufactured steel products, including machinery. It is therefore difficult to estimate the capital invested in the industry's iron and steel producing facilities, and the revalorization of assets required by law after the currency stabilization also gives little insight into the sums originally invested. However, a rough approximation of $200,000,000 gives an idea of the probable total capital investment represented by the Czechoslovak production of pig iron, steel, and rolled products.

Czechoslovak manufacturing concerns with sufficient resources to weather the early postwar years benefited afterwards in many cases by the stabilization of the Czechoslovak crown at slightly more than one-seventh of its pre-war value. Where assets consisted largely of real estate, plants, and equipment, little loss was sustained as a result of the currency inflation, while liabilities in the form of bonds, mortgages, and bank debts were reduced to a fraction of their previous value. None of the three largest Czechoslovak iron and steel producing companies is now burdened with a funded debt or with preferred stock. Dividends have been paid without interruption and at increasing rates since stabilization, while larger sums have continually been added to reserves Obviously such results could only have followed successful operations under favorable conditions for a considerable period of time In the case of the other important iron and steel producers a similar record of prosperity has been experienced in recent years, as is evidenced by steadily increasing profits and ever larger dividends to shareholders Unfortunately, wide differences in financial set-up among the various companies render a combined analysis of financial results difficult, if not impossible. Additional details regarding the principal companies, however, are included in a subsequent portion of this bulletin

IMPROVED PRODUCTION METHODS

Reference has been made to the steady concentration as a result of which the Czechoslovak iron and steel production is now largely in the hands of three important companies, two of which have their plants located in the Silesian coal fields, while the third is situated in Kladno, near Prague Not only has this development served to eliminate the smaller and less efficient producers, but the growth and prosperity of the large companies has permitted them to improve their plants and equipment until they compare favorably with the best in Europe In 1928 blast furnaces producing 98 per cent of Czechoslovakia's pig iron showed an actual output per furnace of 313 metric tons for every day in blast Since large furnaces are more efficient than small it is interesting to note that the average size of the Czechoslovak blast furnace is greater than in the case of Great Britain, France, or Belgium, and not very far behind Germany

Czechoslovak facilities for producing a variety of iron and steel semimanufactures and manufactures are no less modern than in the case of blast-furnace equipment With its large export trade the industry has been forced to keep abreast of the latest manufacturing developments, although it is true that in recent years the continued expansion in iron and steel production has been due primarily to larger domestic consumption, particularly in building construction The ability of the Czechoslovak industry to maintain exports at a high level to many parts of the world, in the face of severe competition, however, is sufficient evidence of its competitive ability

ORGANIZATION WITHIN THE INDUSTRY

The difficult postwar situation in Czechoslovakia brought the three large Czechoslovak iron and steel manufacturers into a cooperative selling arrangement in September, 1921. In the following May (1922) the joint sales organization was expanded to include six other producers, thus accounting for all the Czechoslovak companies manufacturing crude steel and steel semimanufactures for sale Relatively small quantities of steel are made by 10 other producers solely for further use in their own plants, which are principally engaged in the manufacture of such products as machinery and high-speed steels

In October, 1925, the joint sales office or "cartel," as it is usually called, was incorporated as the Sales Office of the United Czechoslovak Iron Works (Inc),[6] (Czech Prodejna Sdružených Československých Železáren Akc Spol , German Verkaufstelle Vereinigter Tschechoslovakischer Eisenwerke A G), with headquarters at Lutzowova 55, Prague II The shares of this organization are owned by the producing companies and it has exclusive charge of all sales A single catalogue of some 500 pages is issued, which describes the products of all the member concerns but with no indication as to the actual manufacturer of a given article The present agreement, which expires in 1931, divides total orders on the following basis

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[6] For convenience the names of trade organizations and of individual companies will be stated not only in English but also in both Czech and German in order that they may be the more readily identified by the reader should he encounter them in other material

	Per cent
Witkowitz Mines Steel & Iron Works Corp	32 229
Prague Iron Works	26 087
Czechoslovak Mining & Iron Works Co	24 595
Other producers	17 089
Total	100 000

The joint sales office maintains uniform prices in addition to apportioning orders, but has no connection with labor questions or other administrative matters within the individual steel plants

Effective January 1, 1927, the Czechoslovak, Austrian, and Hungarian steel producers as a group became members of the Continental Steel Entente Special agreements of earlier date among the three central European countries made joint action seem both advisable and necessary, and the entente awarded them a total production quota of 2,141,000 metric tons More than two-thirds of this total, or 1,432,000 tons, was allotted to Czechoslovakia However, at the July (1928) meeting the Continental Steel Entente in Duesseldorf, it was decided to abolish the central European cartel as such and to admit the three countries individually as members of the continental group At the same time Czechoslovakia was freed from all restrictions as to its domestic market, while exports were limited to approximately 500,000 metric tons As a result of two general quota increases during 1929, Czechoslovakia was given an additional export allowance of about 60,000 metric tons This export quota was approximately equaled by actual Czechoslovak shipments of steel semimanufactures to foreign countries during 1929 Finished manufactures are not included in the limiting agreement and Czechoslovak exports of steel ingots are negligible

In addition to its affiliations with the Continental Steel Entente, Czechoslovakia also holds membership in the International Pipe Cartel, which allots 14 per cent of the continental production of pipe to Czechoslovak and Polish producers A central office is maintained in Prague by all of the Czechoslovak pipe manufacturers and a production quota is assigned to each Twenty-two companies are also united in a wire nail cartel with a central office at the same address as the pipe producers (Na Florenci 3, Prague II), while Czechoslovak, Austrian, and Hungarian rail manufacturers belong in a group to the "Erma" (European Rail Makers Association), which limits Czechoslovak exports to 2½ per cent of the total world export trade in rails

LEADING CZECHOSLOVAK IRON AND STEEL MANUFACTURERS

A few significant data regarding the more important Czechoslovak iron and steel manufacturers are appended.

WITKOWITZ MINES STEEL & IRON WORKS CORPORATION

The Witkowitz Corporation (Czech Vítkovické Horní a Hutní Těžířstvo, German Witkowitzer Bergbau u Eisenhutten Gewerkschaft) is the oldest and probably the best-known steel producer in Czechoslovakia. Offices and plant are located at Witkowitz, a suburb of Mahrisch-Ostrau. The works were founded in 1829 and in 1843 control passed into the hands of the banking house of S. M. Rothschild, of Vienna, who 30 years later sold a portion of their holdings to Gutmann Bros., also of Vienna. Since 1873 ownership has remained exclusively in the possession of these two houses, and for this reason the corporation does not give the same publicity to its financial results and production records as in the case of other companies whose shares are more widely held. As previously mentioned, it has a quota of 32.229 per cent of total Czechoslovak sales of steel. Approximate annual output of the corporation's principal products is shown in the following statement:

	Metric tons
Coal	2,500,000
Coke	700,000
Pig iron	700,000
Steel ingots	800,000
Rolled products	700,000
Steel castings, forgings, armor plate, etc.	120,000
Machinery and fabricated products	80,000
Pipes and tubes	70,000
Iron castings	40,000
Boilers and bridge material	25,000

The corporation's plant and equipment are of the first order and include seven blast furnaces and eight large open-hearth furnaces. Four of the latter are Talbot tilting furnaces with individual capacities of 200 tons. The company's employees number nearly 35,000, of whom 10,000 are occupied in the coal mines.

CZECHOSLOVAK MINING & IRON WORKS CO.

Incorporated in 1905 to take over properties belonging to the estate of Archduke Frederick Habsburg, the Oesterreichischer Bergund Huttenwerksgesellschaft was left by the peace treaties with the greater part of its properties in the Silesian coal fields of Czechoslovakia. In 1921 the Czechoslovak Mining & Iron Works Co. (Czech Báňská a Hutní Společnost, German Berg- und Huttenwerksgesellschaft) was organized as a Czechoslovak corporation to assume the assets and liabilities of the former company's Czechoslovak interests. The head office was established in Brunn, but in 1930 will be moved to Prague. After 1920 a large interest in the company was acquired by the Union Europèenne Industrielle et Financière (Schneider-Creuzot group), which is reported to amount to nearly 50 per cent of the outstanding shares. The French interest are represented on the board of directors, as is also the influential Živnostenská Banka of Prague which controls an important block of the company's stock. The shares are listed on the Prague and Vienna stock exchanges.

The company's report for 1929 reflects a year of record activity and profits Assets as of December 31, 1929, are listed at the conservative figure of 1,454,000,000 crowns (over $43,000,000), as against total liabilities of less than $12,000,000, leaving a net worth applicable to the common stock of more than $31,000,000 The $12,000,000 liabilities consist of bank debts and accounts payable (the company has no funded debt or preferred stock), while accounts receivable amounted to $8,000,000 The Czechoslovak Mining & Iron Works Co is the only large steel producer which has so far adjusted its accounts in terms of the present value of the Czechoslovak crown, so that the foregoing figures doubtless give a fairly accurate though conservative picture of its condition Net profits for 1929 were 45,680,000 crowns (over $1,800,000), 151,470,000 crowns ($4,500,000) were added to reserves for depreciation, and a dividend of 160 crowns per share (1,000 crowns par value) was declared Current market value of the stock (May, 1930) is about 3,750 crowns per share, or slightly less than book value, resulting in a current yield of about 4¼ per cent The company has paid dividends every year since its establishment in 1905

The principal plants of the Czechoslovak Mining & Iron Works Co are located at Trzynietz, near Mahrisch-Ostrau Coal mining constitutes a larger proportion of its activities than in the case of the other steel producers, but its quota of the total Czechoslovak steel sales is no less than 24 595 per cent Selected production figures are given in the following table

IMPORTANT PRODUCTION ITEMS OF THE CZECHOSLOVAK MINING & IRON WORKS CO

[In metric tons]

Item	1928	1929	Item	1928	1929
Coal	3,381,000	3,980,000	Steel ingots	404,889	505,868
Coke	958,373	1,010,000	Rolled products	348,511	423,783
Pig iron	392,396	475,323	Fabricated products	112,355	117,953

The company is well integrated and has the distinction of possessing the largest single blast furnace in the country (550 metric tons capacity) in addition to three other furnaces of from 200 to 300 tons Employees in all the company's works and mines number approximately 23,000

PRAGUE IRON WORKS

The Prague Iron Works (Czech Pražská Železářská Společnost, German Prager Eisen-Industrie-Gesellschaft) was established in 1857 and incorporated in 1863 Head offices are in Prague and works in Kladno, Konigshof, and Althutten, all near the capital As in the case of the Czechoslovak Mining & Iron Works Co , the Živnostenská Banka of Prague plays an influential part in the company's affairs The balance sheet for December 31, 1929, shows assets of nearly $10,000,000, but no allowance is made for the depreciation of the Czechoslovak crown Iron ore mines, with reserves estimated to be sufficient for 20 years of operation, are carried on the books at 1 crown ($0 03) The company has no funded debt or preferred stock and the present market value of the outstanding common stock (May, 1930) is over $10,000,000 Net profits for 1929 amounted to 11,310,000 crowns (about $335,000), but 21,183,000 crowns (nearly $630,000) were added to depreciation reserves in spite of the low valuation at which properties are carried Total indebtedness to banks at the end of 1929 amounted to 31,000,000 crowns (about $900,000) Dividends have been paid in every year since 1881, with the exception of 1922, when the effects of currency deflation were most felt The 1929 dividend was at the rate of 75 crowns per share of 500 crowns par value which, at current quotations (May, 1930) around 1,820 crowns per share, is a yield of just over 4 per cent

The Prague Iron Works has a slightly larger steel sales quota than the Czechoslovak Mining & Iron Works Co (26 087 per cent against 24 595 per cent), but in 1929 the latter company moved into second place in actual output Principal production figures for the Prague Iron Works are given in the following table

OUTPUT OF PRAGUE IRON WORKS

[In metric tons]

Item	1928	1929	Item	1928	1929
Coal	1,039 926	1,226,234	Raw steel	446 664	433,347
Iron ore	882,850	840,985	Semimanufactures	110,963	105,951
Limestone	533,347	565,866	Manufactures	250,017	249,563
Pig iron	434,439	421,348	Castings	22,808	22,631

The company is well organized and efficiently managed In recent years large investments from earnings have been made in improving plant and equipment The company possesses eight blast furnaces and employs about 12,000 workmen

ŠKODA WORKS

Although comparatively unimportant as steel producers no discussion of the Czechoslovak iron and steel industry would be complete without reference to the famous Škoda Works (Czech· Akciová Společnost dříve Škodovy Závody) with general offices in Prague and principal works in Pilsen The company was incorporated in 1899 to take over the factories of E Škoda in Pilsen As the most important munitions producer in Austria-Hungary the Škoda Works were greatly enlarged during the World War and now rank among the largest industrial enterprises in Czechoslovakia As in the case of the Czechoslovak Mining & Iron Works Co , a large interest in the Škoda Works was acquired after the war by the Schneider-Creuzot group The Živnostenská Banka of Prague is also heavily interested, but control is said to rest in French hands

The Škoda Works do not have so favorable a capital structure as the other companies described In addition to a 7½ per cent sterling loan floated in 1926, of which approximately £2,400,000 was outstanding at the end of 1929, the company had a bank debt of some $30,000,000 on the same date Nevertheless sales and profits have shown a steady upward tendency and amounted to 1,527,000,000 crowns (over $45,000,000) and 67,100,000 crowns (nearly $2,000,000) respectively in 1929, while depreciation reserves were increased by more than $2,500,000 Škoda shares are listed on the Prague, Paris, and Vienna stock exchanges Recent quotations (May, 1930) around 1,800 crowns per share give a total market value to the outstanding capital stock of nearly $45,000,000 and a current yield (dividend 90 crowns per share of 320 crowns par value) of 5 per cent.

The Škoda Works manufacture small quantities of steel for their own use, but the more important items of production include such diverse items as steel castings (144,000 metric tons in 1929), automobiles, airplanes, tractors, locomotives, turbines, guns, and various types of machinery. As manufacturers of structural steel and certain other rolled and drawn steel products the Škoda Works are members of the Czechoslovak steel cartel. Employees number over 37,000.

POLDI STEEL WORKS

Although smaller than the undertakings mentioned above, the Poldi Steel Works (Czech Poldina Hut, German Poldihütte) are important for their production of high-speed steels, stainless steel, and similar quality products. The company has head offices in Prague and plants in Kladno and Komotau. It was established in 1890 and since the war has built up so successful an export trade that approximately 70 per cent of its products are now sold to foreign countries, Germany being the best customer. Total assets on December 31, 1929, amounted to 304,160,000 crowns (over $9,000,000) and the market value of the outstanding capital stock in May, 1930, was approximately $6,500,000. The shares have a par value of 400 crowns (market value about 700 crowns) and are listed on the Prague, Vienna, and Geneva stock exchanges. Current yield with a dividend of 36 crowns per share is slightly over 5 per cent and net profits in 1929 were 11,900,000 crowns (about $350,000). The company is sponsored by the Bohemian Discount Bank and the Živnostenská Banka, both of Prague.

The Poldi Steel Works specialize in such products as crankshafts for airplane and automobile motors, springs for railway rolling stock and motor cars, antigalvanic rings for electric generators, in addition to stainless and high-speed steels. A new extension to the plants, containing 16 annealing furnaces, ranks among the best of its kind in Europe. Aggressive management and the high quality of the company's products permit sales to many parts of the world, including the United States, at prices 5 per cent to 10 per cent above average levels. About 4,000 men are employed.

NOTE.—In this bulletin geographical names with no recognized English spelling have been given with German orthography. With two exceptions, the Czech and German names are practically identical in pronunciation, but to persons not familiar with Slavonic languages the Czech spelling is often difficult to pronounce. Czech, German, and English equivalents are given below.

Czech	*German*	*English*
Chomutov	Komotau	
Kladno	Kladno	
Kraluv Dvur	Königshof	
Moravska-Ostrava	Mahrisch-Ostrau	
Nucice	Nutschitz	
Ostrava-Karvin	Ostrau-Karwin	
Plzen	Pilsen	Pilsen
Praha	Prag	Prague
Stará Hut	Althutten	
Trinec	Trzynietz	
Vitkovice	Witkowitz	

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Annual reports of the companies described

U. S. DEPARTMENT OF COMMERCE
R. P. LAMONT, Secretary

BUREAU OF FOREIGN AND DOMESTIC COMMERCE
WILLIAM L. COOPER, Director

MARKET FOR COOKING AND HEATING APPLIANCES IN CANADA AND LATIN AMERICA

Trade Information Bulletin No 714

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FOREWORD

The foreign market for American cooking and heating appliances has shown a very healthy growth during recent years, as demonstrated by the fact that United States exports of such appliances, exclusive of fuel-oil burners, during 1929, were valued at $6,580,054, as compared with $4,555,239 for similar exports during 1924—a gain of 43 per cent

During 1929 the United States sold to Canada and Latin America, the area covered by this bulletin, cooking and heating appliances valued at $4,188,397, this sum being about 63 per cent of total foreign sales of such equipment during that year American sales of cooking and heating equipment to Canada increased from a value of $940,740 in 1924 to $2,532,526 in 1929—this latter figure being some 38 per cent of total exports of such equipment from the United States for that year Exports of cooking and heating appliances from the United States to Latin America in 1924 were valued at $994,583 and in 1929 at $1,655,871, an increase in sales during that period of about 66 per cent The entire gain in foreign sales of American cooking and heating equipment, exclusive of oil burners, is accounted for by increased exports to Canada and Latin America

The largest items in sales to Canada are house-heating boilers and radiators, gas stoves, ranges, and water heaters, and parts of stoves and ranges, while the most important items going to Latin America from the United States are kerosene cookstoves and ranges, electric cooking and heating devices, and gas stoves, ranges, and water heaters. Because of the mild climate prevailing in most of Latin America this area offers only a limited market for house-heating equipment in the countries located in the southern part of South America

This bulletin was prepared in the Iron and Steel Division of the Bureau of Foreign and Domestic Commerce by Assistant Trade Commissioner W Duval Brown from reports submitted by representatives of the Department of Commerce and the Department of State The Iron and Steel Division keeps in touch with developments in the foreign markets for cooking and heating appliances, and those interested are invited to apply to the bureau for further information

William L Cooper, *Director,*
Bureau of Foreign and Domestic Commerce.

September, 1930.

MARKET FOR COOKING AND HEATING APPLIANCES IN CANADA AND LATIN AMERICA

Exports of cooking and heating appliances, exclusive of oil burners and parts, from the United States to the countries of North and Central America, the West Indies, and South America, during 1929 were valued $4,188,397, as compared with $1,935,323 during 1924, showing a gain during the period of more than 110 per cent

Canada is our best market for cooking and heating appliances and the most important sales items in that market are house-heating boilers and radiators, and other house-heating equipment, a circumstance which is natural in view of the cold climate of Canada The Canadian market is similar to that in the United States, with very keen competition both from Canadian home production and from imported British goods

Because of climatic conditions in Latin America there is little demand in most of these countries for house-heating equipment and the best market is for cooking appliances and water heaters During recent years there has been a very decided increase in the Latin American demand for kerosene cookstoves and ranges For many years charcoal has been the almost universal fuel used for cooking appliances, but as this becomes more expensive and more difficult to obtain on account of deforestation the people are turning to the use of kerosene cookstoves The largest demand in that area is for the small 1-burner and 2-burner stoves, but there is a fair demand for the cookstoves or range type of kerosene burner

The Latin American market for electric stoves and ranges and other domestic electric cooking and heating devices has shown very considerable expansion during the past five years, and exports of such devices from the United States to that area during 1929 were valued at about $549,000, equaling about 40 per cent of our total exports under this heading for that year Latin America takes a considerable number of eletric cookstoves and ranges, though there is a slightly greater demand there for the smaller electric cooking and heating devices

The purpose of this bulletin is to consider the American markets (other than those of the United States) for cooking and heating appliances, exclusive of oil burners, which have already been given separate consideration In the field of domestic electric cooking and heating devices electric flat irons have not been considered nor included in the tables given The statistics for 1929 are based upon preliminary figures and may be subject to minor corrections when final figures are available

The following table shows value of exports of cooking and heating appliances from the United States to Canada and Latin America for the years 1924 and 1929

UNITED STATES EXPORTS OF COOKING AND HEATING DEVICES TO CANADA AND LATIN AMERICA DURING 1924 AND 1929

Type of equipment	1924		1929	
	Canada	Latin America	Canada	Latin America
Coal and wood burning cookstoves and ranges	$23,530	$189,925	$69,771	$180,477
Heating stoves and warm air furnaces	64,307	28,802	286,295	24,550
Gas stoves, ranges, and hot water heaters	213,153	212,494	498,563	255,202
Oil and gasoline stoves	66,282	105,559	----------	----------
Kerosene cookstoves and ranges	----------	----------	119,978	340,284
Gasoline cookstoves and ranges	----------	----------	66,737	100,680
Parts of stoves and ranges	135,550	95,936	470,770	156,563
House heating boilers and radiators	202,454	99,577	599,773	49,473
Electric domestic cooking and heating devices	235,464	262,290	----------	----------
Electric cookstoves and ranges	----------	----------	30,493	225,108
Other domestic electric cooking and heating devices	----------	----------	390,146	323,534
Total	940,740	994,583	2,532,526	1,655,871

CANADA

Based on reports from all Canadian offices of United States Department of Commerce

Canada is one of our best foreign markets for heating and cooking appliances, exports under this heading from the United States to that country during 1929 having been valued at more than $2,500,000 The purchasing power of the Canadians is high and the life and customs of the people are very much the same as in the United States Climatic conditions there are similar to those encountered in our northern tier of States, the heating of homes being necessary for some seven or eight months of the year, and because of this long season during which artificial heat is required, the percentage of residences having central heating plants is large both in urban and in rural districts. As domestic help is scarce and expensive in Canada, many housewives do their own work, creating a demand for high-grade cooking appliances and for labor-saving devices in general

Coal and wood are the most popular fuels in Canada, it being estimated that some 80 per cent of all stoves in present use burn these fuels Natural gas is used to a considerable extent in the Province of Alberta and in other sections both for cooking and for heating, but very little manufactured gas is used in connection with heating plants, as it is considered too expensive Coke and fuel oil are both gaining in popularity as fuels for central heating systems, though up to the present time few industrial plants have employed fuel oil for the generation of power

Kerosene cookstoves are sold to only a limited extent, as in a cold climate such as Canada there is less demand for such stoves than in warmer climates where being able to extinguish the fire immediately after cooking is a decided advantage There is, however, a small market for kerosene heaters and for gasoline stoves, these latter being used chiefly by automobile camping tourists and in summer cottages and camps In those sections of Canada where electricity is cheap there is considerable demand for electric heaters and ranges

HEATING APPLIANCES

A large percentage of dwellings and other buildings in Canada have basements, where central heating plants may be installed In urban districts it is estimated that 80 to 90 per cent of all houses have central heating plants Some of the farmhouses have furnaces, although the percentage among these is not so high In the Prairie Provinces, where the draining of cellars is a problem, many farmhouses do not have basements of any kind

Hot water is the most popular type of heating system in Canada, but a few of the larger buildings use steam Warm-air furnaces are found only in the smaller and less expensive residences Radiators and boilers are of the same type as those used in the United States, and our exports to Canada of these products come to $600,000 annually, accounting for about 90 per cent of all Canadian imports under this heading

It is estimated that only about 20 per cent of the Canadian demand for radiators and boilers is supplied by imports, the remainder being supplied by domestic production The import duty on such equipment from the United States amounts to 25 per cent ad valorem, which gives the domestic product a considerable advantage Some American manufacturers of this equipment have established branches across the border, and all equipment of this kind made in Canada is patterned after American lines Central heating equipment manufactured in Canada has a further advantage in that replacement parts are more easily and quickly obtainable On account of this fact, it is highly advisable that the American manufacturer selling in the Canadian market should have his representative keep on hand an ample stock of spare parts

A large percentage of the heating plants in Canada use coal, though coke and fuel oil are gaining in popularity as fuels, and in those districts where natural gas is available at low rates it is used to a considerable extent for central heating plants

Stoves burning wood and coal are widely utilized for heating homes in the smaller towns and in the rural districts of Canada A large percentage of such stoves is manufactured in the country, and imports supply only about 15 per cent of the demand However, many Canadian stove factories import stove parts from the United States, as is evidenced by the fact that our exports to Canada under this heading during 1929 were valued at $470,770, while our exports of stoves to that country during 1929 were valued at only $69,771 The Canadian production of heating stoves, amounting to more than $5,000,000 annually, supplies a large percentage of the demand and also contributes more than $100,000 each year to exports

Stoves manufactured in Canada are usually built more for utility than for appearance, though heaters of the parlor type are available Most of the stoves used for heating are the heavy cast-iron "station" or "globe" type, though the small air-tight sheet-iron stove is becoming increasingly popular Some heaters are supplied with one or two plates on top for cooking or for heating water, while others are furnished with a water pan to supply the necessary room moisture Coal-burning stoves are used in cities and towns, and only in rural districts where wood is abundant and cheap are heaters employing wood as fuel encountered

Portable kerosene heaters are used to a limited extent in rural districts for supplemental heating only, as the cold in Canada is too severe for such heaters to play any really important part in supplying artificial heat Very few gasoline stoves are used for domestic heating purposes

In those areas where electricity is available at a low rate, electric heaters for supplementing other heating systems are used somewhat extensively. Imports, chiefly from the United States, supply about 25 per cent of the demand for electric heaters and the remainder of the market is taken care of by the output of the Canadian factories

As a rule, hot water for domestic purposes is heated by means of a coil placed in the coal-burning or wood-burning kitchen range Artificial gas, natural gas, kerosene, and electricity are also used to some extent for heating water All types of water heaters are manufactured in Canada except those employing kerosene, the demand for these being supplied almost entirely by imports from the United States American manufacturers also sell the Canadian market a goodly number of gas water heaters, as domestic production there does not entirely supply the demand Most of the boilers used in connection with water heaters are manufactured in Canada

Steam fittings of the usual and standard types are manufactured in Canada and that market relies on imports from the United States only for larger fittings, high-pressure valves, and specialties in this line for which there is no general demand Heat regulators for furnaces, mercury thermometers, and similar appliances for which there is only a limited demand are all imported, as none of these are manufactured in Canada

Equipment for central heating plants is distributed chiefly through large jobbers who deal in steam fittings, heating plants, and hardware Some factories manufacturing such equipment maintain their own sales department in Canada, selling direct to the consumer or builder For smaller heating units, such as stoves and heaters, the principal channels of distribution are through hardware dealers, and in some cases through the larger department and general stores

COOKING APPLIANCES

Since many housewives in Canada do their own cooking, there is a considerable demand for high-grade cooking appliances similar to those used in the United States It is estimated that Canadian production of cooking appliances supplies at least 85 per cent of the market, while the remainder is supplied chiefly by imports from the United States

The most popular type of range is one having six holes for cooking, an oven, a warming closet, and a water back, with the firebox adaptable for using either coal or wood Probably 60 per cent of all cooking ranges used throughout Canada burn either coal or wood

Gas cookstoves are used to a considerable extent in all Canadian cities, though the use of coal-burning ranges even in the cities is not uncommon It is estimated that about 25 per cent of all cookstoves in Canada burn gas In this field imports supply a fair percentage of the demand, as evidenced by the fact that according to Canadian statistics that country during 1928 imported from the United States some 13,000 gas ranges valued at $270,000

There is a fair and growing demand in Canada for kerosene cookstoves, both with and without wicks Such stoves are usually found in small towns and villages where gas for cooking is not obtainable, and to a limited extent on farms, but most of the ranges used in villages and in rural districts burn wood The market for kerosene cookstoves is very largely supplied by importations from the United States, as the manufacture of these in Canada has not yet attained any considerable importance During 1929 the United States exported to Canada kerosene cookstoves valued at $119,978, as compared with $104,902 during the preceding year Gasoline cookstoves are used chiefly by automobile tourists and in summer cottages and camps, but exports of these last from the United States to Canada increased from a value of $48,589 in 1928 to $66,737 in 1929

Since electricity is relatively cheap in many of the Canadian Provinces, electric cooking and heating appliances find a good market, as indicated by the fact that American exports of these to Canada during 1929 were valued at $390,146 Sales of American-made electric ranges to the Canadian market have not as yet attained any great volume, having amounted to only $30,493 in 1929, which represents an increase of only about $1,000 over the preceding year A considerable quantity of electric appliances for domestic use is manufactured in Canada and imports supply only a relatively small percentage of the demand

Cooking appliances in Canada are distributed through the hardware dealers, sales being made direct to the retailer by the manufacturer in most instances The gas companies selling manufactured gas act as distributors for gas ranges and cookstoves, but the gas companies selling natural gas do not handle cooking appliances

The following table shows value of exports of cooking and heating appliances from the United States to Canada from 1924 to 1929

UNITED STATES EXPORTS OF COOKING AND HEATING APPLIANCES TO CANADA

Article	1924	1925	1926	1927	1928	1929
Coal and wood burning cookstoves and ranges	$23, 530	$36, 346	$36, 765	$75, 341	$111, 359	$69, 771
Heating stoves and warm air furnaces	64, 307	69, 367	144, 515	198, 921	251, 015	286, 295
Gas stoves, ranges, and water heaters	213, 153	363, 086	503, 036	403, 175	524, 227	498, 563
Oil and gasoline stoves	66, 282	59, 111	97, 225	108, 858		
Kerosene cookstoves and ranges	(1)	(1)	(1)	(1)	104, 902	119, 978
Gasoline cookstoves and ranges	(1)	(1)	(1)	(1)	48, 589	66, 737
Parts of stoves and ranges	135, 550	240, 316	329, 988	365, 529	378, 676	470, 770
House-heating boilers and radiators	202, 454	259, 043	137, 461	475, 689	402, 101	599, 773
Domestic electric cooking and heating devices	235, 464	253, 573	271, 278	325, 639		
Electric domestic cookstoves and ranges	(1)	(1)	(1)	(1)	29, 201	30, 493
Other domestic heating and cooking devices	(1)	(1)	(1)	(1)	371, 556	390, 146
Total	940, 740	1, 280, 842	1, 520, 268	1, 953, 152	2, 221, 626	2, 532, 526

[1] Not given separately prior to 1928

CREDIT TERMS

The usual credit terms extended by jobbers and manufacturers in Canada on the sale of heating and cooking appliances are 30 days, with 2 per cent discount for payment in 10 days In some instances terms of 60 days, net, with a 2 per cent discount for payment in 30 days are given, but such terms are the result of special negotiations rather than the general practice Canadian manufacturers are considering the advisability of more widely adopting terms of 2 per cent discount for payment on the 10th of the month following, with 60 days, net, but there is some doubt as to the merits of such terms as they would tend to bunch orders around the 1st of the month in order to take advantage of the maximum discount period The Canadian market is accustomed to quotations of f o b , factory, and c i f prices are not expected Credit information is easily obtainable in Canada through channels similar to those used in the United States—credit-reporting agencies and banks

METHODS OF COVERING THE CANADIAN MARKET

When covering the Canadian market the general practice is to divide Canada into five commercial districts, and since the territory to be covered is large it is often thought advisable to appoint a separate distributor for each area The most usual method is to select an agent in the following cities for the territory commercially dependent upon them Halifax, Nova Scotia, for the Maritime Provinces, Montreal for the Province of Quebec, Toronto for the Province of Ontario, Winnipeg, Manitoba, for the Prairie Provinces; and Vancouver for British Colombia The Maritime Provinces can be covered effectively from Montreal if it is considered advisable to divide the Dominion into four rather than five commercial areas

SALES RESISTANCE

The American manufacturer of heating and cooking appliances selling in the Canadian market meets with considerable sales resistance due to the strong sentiment in favor of buying Canadian-made goods, and after this there is encountered the propaganda for buying Empire goods—that is, products coming from the United Kingdom and the British Dominions In addition to these matters of sentiment, American heating and cooking appliances have to pay a high ad-valorem import duty, while imports from the Empire pay a lower rate The Canadian product, which has not paid any import duty, of course, offers the keenest competition Some British lines of stoves and household goods bear a very good reputation for quality and are quite popular although more expensive than American lines of the same kind

ADVERTISING

The Canadian market is much the same as our domestic market, and advertising methods similar to those used in the United States have proved successful in Canada Most representatives expect some assistance in the way of advertising and will also wish to be furnished with proper display material Owing to the fact that the population of Canada is spread over a wide area and, particularly in the western Provinces, is largely rural in character, displays at fairs and expositions where people from a wide surrounding territory gather have been found to be a very successful means of advertising heating and cooking appliances

NOTES ON INDIVIDUAL MARKET AREAS

Montreal (*Assistant Trade Commissioner L A France*) —Most of the cooking and heating appliances used in the Maritime Provinces and in the Province of Quebec are made or assembled in Canada, it being estimated that imports supply from 10 to 25 per cent of the demand, depending on the type of equipment involved Although no definite figures are available, it appears that the Province of Quebec and the Maritime Provinces during 1928 imported cooking and heating appliances valued at $300,000 to $400,000 and it is estimated that at least 90 per cent of such imports came from the United States

In heating equipment hot-water systems are by far the most popular, though hot-air furnaces are used to a considerable extent in the less expensive houses and in the smaller towns and rural districts For cooking, the wood and coal burning ranges are the most popular, while kerosene and gasoline cookstoves are used principally in summer cottages and camps In the cities and towns coal is the most popular fuel, but in the rural districts of the Province of Quebec and in the

Maritime Provinces wood is plentiful and is used almost to the exclusion of other fuels

Canadian-made heating and cooking appliances, as well as those imported, are usually handled by plumbing jobbers who also handle hardware Two or three of the large department stores in Montreal and Quebec, however, buy direct from the manufacturers Frequently in the case of imported appliances a manufacturer's agent secures orders from the jobbers and large department stores A few commission agents solicit the retail trade, but these have been unable to build up much of a business on account of their dependence upon the jobbers, who discourage this practice The large jobbers continue to do most of the business in these lines, as through years of experience they are in the best position to handle credit difficulties incidental to selling to the retail plumbing and hardware trade

Ottawa (*Assistant Trade Commissioner A H Thiemann*) —Since the city of Ottawa lies in the industrial section of Canada, a large percentage of the heating and cooking appliances sold there are of Canadian manufacture Coal is the most popular fuel, selling for about $9 a ton Anthracite is also used extensively, the American product sells for about $15 75 a ton, while Scotch and Welsh anthracite sells for $17 50 a ton Gas coke retails at $12 50 to $14 a ton, and fuel oil is sold for $11 30 per 100 gallons The cost of manufactured gas in Ottawa is $1 20 per thousand cubic feet when it is used for cooking without electricity, and $1 26 per thousand cubic feet when it is used in conjunction with electricity for cooking

Toronto (*Assistant Trade Commissioner W P Sargent, Jr.*) —Most of the apartment house buildings and better residences in the city of Toronto are equipped with the hot-water type of central heating plant Office buildings and factories employ steam, and the cheaper residences use hot-air furnaces Of the heating stoves employed some 80 per cent burn coal or wood, 10 per cent gas, and the remainder kerosene or gasoline, while of the cookstoves, 60 per cent burn wood or coal, 25 per cent gas, and about 15 per cent kerosene No gasoline is used in the city in connecting with cookstoves As a result of the cheap rates for electricity in the Province of Ontario, a considerable number of electric ranges and heaters are used

Coal, wood, gas, kerosene, and gasoline are all easily obtainable in the Toronto district, but coal and wood are considered to be the cheapest fuels, and the use of any other is on account of the greater convenience or cleanliness Heating appliances in Toronto and the Province of Ontario are distributed through the steam-fitting trade, while cooking appliances are sold direct to the retailer by the manufacturer With the exception of furnace heat regulators, which are brought in from the United States and for which there is a considerable demand, domestic production of heating and cooking appliances is sufficient to supply the Ontario market and to provide a surplus for shipment to other Provinces

Winnipeg (*Assistant Trade Commissioner C E Brookhart*).—In the Prairie Provinces of Canada a large percentage of the population is made up of prosperous farming people scattered over a wide area. Central heating is used almost universally in the towns and probably 50 per cent of all farmhouses also use this type of heating Very few stoves and furnaces are manufactured in this section of the

Dominion and the market is dependent upon the factories of the eastern Provinces and upon imports from the United States

Two factors—cheap electricity and natural gas in some sections—make this market a little different from those in other sections of Canada Winnipeg and the surrounding district has a very cheap rate for electricity, said to be the cheapest in all North America, due to which the use of electrical heating and cooking devices is very widespread and materially effects the demand for other cooking and heating appliances Electricity has not yet been used for central heating plants but is widely used for auxiliary heating as well as for cooking In the Province of Alberta natural gas is obtainable and is used for heating and cooking almost to the exclusion of other fuels

Heating plants are handled chiefly by the large jobbers who sell to the hardware trade and to local heating contractors and engineers A number of manufacturers have their own representatives or branch houses in Winnipeg which act as jobbers for western Canada Stoves and cooking appliances are, as a rule, sold direct to the retail hardware dealers by the manufacturers Canadian heating and cooking appliances have been gaining in competition with the American product for a number of years, as a result of tariff protection and the fact that replacement parts for the domestic product are more quickly and easily obtainable

Kerosene and gasoline cookstoves and ranges have met with considerable sale in the Prairie Provinces among the prosperous farming class In this field the American product still dominates, though Canadian kerosene and gasoline stoves are gaining some recognition Small gasoline cookers are used by campers traveling by automobile or motor boat, there being a considerable market in this area for this type of camp stove

Vancouver (*Trade Commissioner E G Babbitt*) —Although there are several factories in British Columbia manufacturing stoves, ranges, and heating appliances, they supply only a small part of the demand, as this market relies chiefly upon imports from the United States for heating and cooking appliances Vancouver is the distributing center for all British Columbia, as in and around that city and at Victoria reside some 600,000 people, or one-half the population of the Province, the towns in the interior not being large

Coal sells in Vancouver for about $10 a ton and is more expensive than wood, and since low temperatures are not registered, though the cold is damp and penetrating, wood makes a satisfactory fuel Sawdust and "hogged fuel" are being utilized to a considerable extent in the Vancouver district This fuel sells for about $2 50 per 200 cubic feet, the unit custom has been established, and this amount is considered as about equal in heat value to 1 ton of coal Special furnaces, sawdust burners, and automatic feeders have been devised to handle this product, and numerous apartment-house buildings as well as industrial plants have adopted this fuel, which has the advantage of cheapness and relative freedom from ash and smoke The disadvantage is its great bulk, requiring considerable storage space or frequent deliveries Many of the new apartment houses in Vancouver are equipped with electric stoves and fireplace radiators in addition to central heating systems

LATIN AMERICA

Since in most of the countries of Latin America the climate is relatively mild, there is no great demand in that area for house-heating equipment In Argentina and Chile there is a growing appreciation of the advantages of central heating, and most of the new buildings in those countries are being equipped with hot-water systems In Uruguay there is some increase in central heating plants, but there the climate is milder and, in most instances, small electric heaters and similar equipment supply all the artificial heat that is considered necessary The Latin American area as a whole also takes each year from the United States a considerable number of heating stoves, although the sales of these to any one country are not large In those countries where stoves are used to any considerable extent local manufacture generally supplies the greater part of the demand Where heating and cooking stoves are manufactured locally, very frequently the parts for making these are imported, either from Europe or from the United States, and only the more simple cast-iron parts are of domestic production

It is somewhat difficult to sell modern cooking appliances throughout Latin America owing to the fact that domestic service is cheap, and any housewife that is in the market for imported cooking appliances has servants and is not particularly interested in getting expensive equipment for them to use The ratio of the upper and middle classes to the entire population is small, and the poorer classes buy only the most primitive cooking equipment, generally consisting of a charcoal brazier or a 1-burner oil stove and a few cooking pots

In a majority of the Latin American countries charcoal has been for many generations the most commonly used fuel for cooking, and it is only where this fuel is becoming more expensive as a result of deforestation that the people as a whole have turned to oil-burning cookstoves and ranges Among the poorer people the 1-burner oil or gasoline stove of the pressure-feed type is popular, while the more prosperous classes use the kerosene or gasoline cookstove or range equipped with an oven In those countries where oil is produced there has been during recent years a decided increase in the demand for kerosene and gasoline cookstoves and ranges In some instances the government has undertaken propaganda to increase the use of petroleum products and to conserve the forests, and in other instances the oil companies have endeavored to foster the use of such stoves and ranges The kerosene cookstove and range has met with much wider popularity than the gasoline stove

Wherever manufactured gas is available in Latin America, gas stoves, ranges, and water heaters are widely used, and the United States supplies a very fair share of the demand for these In most cases the gas companies are the largest distributors of this equipment

In the field of electric cooking and heating equipment the Latin American market has shown decided gains during recent years, and it is believed that these gains will be retained Electric cooking and heating devices are ideally adapted to use in those countries where all fuels are expensive In most instances the climate is tropical, making any cooking device that radiates a small amount of heat very desirable The investment of American capital in Latin American light and power plants has also had a very favorable effect on our sales in that area

The daily papers and local magazines are probably the most used method of advertising household appliances in Latin America There are few trade papers and these do not reach a large public There are a few household magazines that have a fairly large local circulation in some of the Latin American cities and these would be suitable for carrying advertising of cooking and heating appliances Most representatives would expect some advertising allowances, and in addition to this they would expect to be supplied with posters, clichés, and printed material The method of advertising is something that has to be determined in each case, depending upon the market, the agent selected, and the article to be sold

MEXICO

Assistant Trade Commissioner Walter E Aylor, Mexico City

The climate throughout Mexico is tropical and semitropical and there is very little demand for central heating equipment, as small stoves or open fireplaces are ample equipment in those sections of the country where some form of artificial heating is occasionally desirable during the winter months There is no general demand for central heating and the exports of some $22,000 worth of house-heating boilers and radiators from the United States during 1929 were probably sold to foreigners residing in the northern parts of the country or at high altitudes, where for short periods the days are disagreeably chilly

The market for cooking appliances is limited by the fact that domestic servants can be easily obtained at relatively low wages, so that the housewife who is in a position to buy imported goods does not do her own work and therefore takes no great interest in the kind and quality of cooking equipment used The native servants are conservative and do not care to adopt what are to them new cooking appliances, but prefer to continue using more or less primitive utensils with which they have learned to obtain very satisfactory results

HEATING DEVICES

The only heating devices used to any great extent in Mexico are portable kerosene stoves and small stoves burning wood or coal Practically all this demand is satisfied by imports from the United States, which during 1929 exported to Mexico heating stoves and warm-air furnaces valued at $12,359 Stoves and warm-air furnaces are classified together, so there is no way of determining just how much of the amount is accounted for by stoves, but it is believed that by far the greater part of Mexican imports under this heading is made up of heating stoves The Mexican market also takes annually from the United States $15,000 to $20,000 worth of house-heating boilers and radiators, most of this equipment is used in that section of the country which is adjacent to the United States Very few, if any, central heating plants have been installed in Mexico City

Heating water for baths was formerly done in Mexico by placing a portable container filled with burning charcoal in the water in the bathtub, allowing it to remain until the water was raised to the desired temperature This system of heating bath water has been more or less supplanted by an instantaneous heater which has no boiler but which has in direct contact with the flame a metal coil through which the water passes and so is heated very rapidly The firebox of this apparatus is so constructed that there is a tremendous draft, and the only fuel necessary is newspapers, rubbish, and wood scraps This machine is patented by a Frenchman, is manufactured in Mexico, sells at a low price, and its operation has proved to be very effective and economical, as the amount of fuel consumed is small This apparatus, together with some imported electrical heaters, supplies the greater part of the demand for water-heating appliances Gas water heaters can be sold only in a few places along the border which obtain manufactured gas from the adjacent American towns and in Monterey, as no other Mexican towns have available supplies of manufactured gas and no natural gas has been found in Mexico

COOKING APPLIANCES

The great mass of the people in Mexico use the small charcoal brazier or open fire for cooking Among the middle and upper class families the principal type of cooking apparatus is what is known as the "bracero," a rectangular tile-covered box about 8 feet long, 3 feet wide, and 1 foot deep, placed upon legs about 4 feet high In this box are placed three or four charcoal grates with an opening underneath each to create a draft and to provide a place for the falling ashes The cooking vessels are placed directly on the burning charcoal, and where oven cooking is desired, a portable sheet-iron oven is placed over the coals Mexican families do little baking of pies, cakes, and bread, as even the small villages have bakeries supplying the demand for bread The "tortilla," which is so widely used for bread, is made of corn meal and is cooked in a pan on top of the stove The "bracero" is what might be regarded as the standard cooking equipment in the middle and upper class homes, and only foreigners and Mexicans who have lived in other countries use cookstoves and ranges During 1929 the United States exported to Mexico wood and coal burning cookstoves and ranges valued at $72,377, as compared with a value of $60,943 for such exports during the preceding year This item used to be the largest in the United States exports of cooking and heating appliances to Mexico, but in 1929 kerosene cookstoves held first place among such appliances.

The use of kerosene cookstoves is decidedly on the increase in Mexico, as charcoal is becoming more expensive and more difficult to obtain since the Mexican Government, with the idea of preserving the national forests, has placed certain restrictions upon its production and sale At the same time, the Government is encouraging the use of other fuels for cooking, particularly the national petroleum products. American kerosene stoves dominate the Mexican market, but European makes are also readily obtainable The French

"Lilor-Paris" 1-burner kerosene cooking stove sells for about $10, and the 2-burner one of this make for about $15 The German 2-burner "Petromax" retails for $25, and the Swedish 2-burner "Primus" for about $13 During the past few years several of the modern apartment houses erected in Mexico City have installed kerosene cook stoves in their kitchens, as no manufactured gas is available in that city

American sales of kerosene cook stoves in the Mexican market rose from a value of $54,666 in 1928 to $83,612 in 1929 Gasoline stoves have met with some popularity, but exports of these from the United States to Mexico were valued at only $34,547 during 1928 and at $34,462 during 1929

It is believed that the sale of kerosene cookstoves and ranges will continue to increase in Mexico, but the market possibilities are limited by the relatively low purchasing power of the people, by the reluctance of the average Mexican domestic servant to utilize any new device, and by the failure of most servants to keep an oil stove clean enough to avoid disagreeable odors and to obtain the best results in cooking

Electricity is available in many Mexican towns at fairly reasonable rates and there is a growing demand for electric cookstoves and ranges and domestic heating and cooking appliances American sales of electric cookstoves and ranges in this market rose from a value of $23,733 in 1928 to $29,209 in 1929, while the value of our sales of other domestic cooking and heating devices increased from $36,210 in 1928 to $49,688 in 1929 Electric hot plates and griddles are popular in hotels and restaurants, and in those localities where rates for electricity are low, electrical cooking appliances are slowly but steadily gaining ground, offering competition to kerosene cookstoves

The market for gas cookstoves and ranges is confined to a few towns along the border which obtain their gas supply from the adjacent American towns and from the city of Monterrey, which has a gas plant Monterrey has only about 600 consumers of gas, a number which is indicative of the small market existing there for gas cooking and heating appliances Ciudad Juarez, across the line from El Paso, Nuevo Laredo, across from Laredo, and Nogales, across the border from the American town of the same name, are the Mexican border towns where manufactured gas is obtainable Exports of gas cookstoves, ranges, and water heaters from the United States to Mexico were valued at $27,472 in 1929, as compared with $30,835 in 1928

The following table shows the value of exports of cooking and heating appliances from the United States to Mexico from 1924 to 1929

UNITED STATES EXPORTS OF COOKING AND HEATING APPLIANCES TO MEXICO

Article	1924	1925	1926	1927	1928	1929
Coal and wood burning cookstoves and ranges	$63,105	$106,714	$81,669	$68,173	$60,943	$72,377
Heating stoves and warm-air furnaces	7 656	8,410	9,688	7,177	15,406	12,359
Gas stoves, ranges, and water heaters	10,388	40,609	20,267	24,976	30,835	27,472
Oil and gasoline stoves	19,953	28,573	31,881	37,920	--------	--------
Kerosene cookstoves and ranges	--------	--------	--------	--------	54,666	83,612
Gasoline cookstoves and ranges	--------	--------	--------	--------	34,547	34,462
Parts of stoves and ranges	14,138	32,258	21,088	17,825	21,452	22,822
House heating boilers and radiators	20,120	21,441	13,660	13,171	13,206	22,609
Domestic electric cooking and heating devices	62,862	89,095	84,638	77,074	--------	--------
Electric cookstoves and ranges	--------	--------	--------	--------	23,733	29,209
Other domestic heating and cooking devices	--------	--------	--------	--------	36,210	49,688
Total	198,222	327,100	262,891	246,316	290,998	354,610

The entire Mexican demand for cooking and heating appliances is supplied by imports, with the exception of the "rapido" water heater and charcoal braziers which are manufactured in the country Of the imports, it is estimated that the United States supplies at least 96 per cent, while France and Germany each supply about 2 per cent American sales of cooking and heating appliances could possibly be stimulated to some extent by active advertising and sales promotion, but the market possibilities are limited by the relatively low purchasing power of the large majority of the population and by the fact that those in a position to buy imported goods do not take any great interest in the kind of cooking equipment which their servants use The increasing cost of charcoal and wood should tend to increase the demand for kerosene and gasoline cooking and heating appliances, as petroleum products are easily obtainable in most parts of Mexico

DISTRIBUTORS

The wholesale hardware or machinery dealer with traveling salesmen covering the territory allotted them is probably the most desirable agent for cooking and heating appliances in Mexico Hardware dealers, certain machinery houses, and the general stores in the smaller towns are also outlets for cooking and heating appliances Some American manufacturers also cover the Mexican territory through commission agents who solicit orders on a commission basis

CREDIT TERMS

The usual quotations given to the Mexican trade in cooking and heating appliances by American and European manufacturers are f o b factory, f a s port of embarkation, or c i f border points or ports of entry Credit terms vary, but to well-established firms 30 to 90 day drafts against documents may be granted To unknown firms or to those of uncertain financial standing cash with the order prevents many difficulties of collection in the future The practice of some firms is to ask part cash with the order and accept a draft for 30 to 90 days for the balance

ALLOTMENT OF SALES TERRITORY

A satisfactory division of the Mexican sales territory is one of the most difficult problems that confronts the American manufacturer selling in that market Frequently general agents located in Mexico City desire to have the whole country assigned to them, but in most instances this does not prove very satisfactory, as it is hardly possible for them to cover all of Mexico, which is about one-fourth the size of the United States and lacks highly developed routes of travel If the agent located in Mexico City endeavors to work the field by appointing subagents, these do not take the proper interest in pushing a line as they have to split commissions with the central agent Also, if stocks are to be carried, one representative for the whole country is not practical, as transportation charges to other points in Mexico are high Probably the most satisfactory manner of covering the market is to divide Mexico into four commercial districts with agents in the following cities

(*a*) Mexico City, to cover the central part of Mexico, including the cities of Puebla, Vera Cruz, Queretaro, Celaya, and Oaxaca This is the most important district from a commercial standpoint, as here are centered the bulk of the population and a large percentage of the purchasing power of the country

(*b*) Monterrey, in the State of Nuevo Leon, to cover that State and the States of Coahuila, Tamaulipas, and part of Chihuahua, comprising what is generally known as the northern district of Mexico The Mexican States lying just across the border from the United States are supplied imported goods to a very large extent by the jobbers located on the American side of the line in the cities of Laredo, Eagle Pass, El Paso, and Nogales Because of this practice very often the American manufacturer feels that he is not getting the results he should from his representative in the northern district, while actually the market is being supplied with his product through American jobbers

(*c*) Merida, in the State of Yucatan, is the commercial center for that State and the Isthmus of Tehuantepec This section of Mexico is much cut off from the rest of the country and for shipment of goods is nearer to the United States from the standpoint of time than it is to Mexico City

(*d*) Guadalajara, in the State of Jalisco, is generally considered to be the best distributing center for the west coast of Mexico as far north as the city of Mazatlan, Sinaloa The State of Sonora, the northern part of Sinaloa, including the town of Culiacan, and part of Chihuahua can probably be best handled from Nogales or El Paso The peninsula of Lower California is sparsely settled and is not of great commercial importance

CENTRAL AMERICA

Prepared in the Iron and Steel Division

As the per capita purchasing power in the Central American Republics is not high there is no widespread demand there for cooking appliances, and because of the tropical climate there is practically no market for heating equipment except a few of water heaters Even though the Central American market for cooking appliances is small, it holds its own from year to year and during the past six years has shown steady gains, as evidenced by the fact that during 1924 total exports of heating and cooking appliances from the United States to this area were valued at about $140,000 while during 1929 they reached a value of $218,125

The Republic of Panama is our best all-round market in this group for cooking and heating appliances and in this bulletin is considered separately Furthermore, Panama is the only country in Central America where manufactured gas is available, and is therefore the only one of these Republics where gas stoves, ranges, and water heaters are in demand The United States exports each year a few gas stoves and water heaters to the other Republics of Central America, but these are evidently intended for use in connection with private gas supplies, as there are no public gas supplies in Honduras, British Honduras, Costa Rica, Guatemala, Nicaragua, and Salvador

Charcoal is the most common fuel for cooking throughout Central America It is used by the poor people in small braziers and by the more prosperous in built-in stoves having three or four charcoal grates over which the cooking vessels are placed After charcoal, wood is the most popular fuel Exports of wood-burning cookstoves and ranges from the United States to Central America amount to about $35,000 annually and are the most important single item in the exports of cooking and heating appliances to that area Costa Rica and Honduras are the largest Central American importers of wood-burning cookstoves and ranges from the United States

Kerosene cookstoves are steadily gaining in popularity, as evidenced by the fact that exports of these from the United States to Central America increased from a value of about $5,000 in 1924 to more than $25,000 in 1929 For this kind of stove Panama is our best customer, accounting for about 60 per cent of such exports from the United States to the Central American Republics during 1929 The growing use of gasoline cookstoves is shown by the fact that the value of American sales to this area increased from about $2,000 in 1928 to some $5,000 during 1929

Electric cookstoves, ranges, and other domestic electric heating and cooking devices are also gaining in popularity, as shown by the fact that the United States during 1929 sold about $95,000 worth of such equipment to Central America, as compared with $37,000 during 1924 In this group of countries Guatemala is the best market for American electrical cooking and heating equipment, having imported from the United States $21,438 worth of electric cookstoves and ranges in 1929, and $15,213 worth of other domestic electric cooking and heating devices After Guatemala, Panama, and Costa Rica are the American manufacturers' best customers in this group for domestic electric cooking and heating devices, having purchased in the United States some $30,000 and $16,000 worth, respectively, during 1929

The large American fruit companies operating in Central America and the Canal Zone authorities, who purchase through their offices located in the United States, sell through their commissaries a very considerable quantity of American goods, so that frequently figures showing the imports of these countries from the United States do not give a correct idea of the amount of goods a representative of an American manufacturer located there should sell. A substantial portion of the potential market in Central America is composed of employees of the large American fruit companies operating there and of those working for the Panama Canal, who purchase nearly all imported goods through the commissaries maintained by these organizations

The following table shows value of exports of cooking and heating appliances (except oil burners) from the United States to the Central American countries for the years 1924 to 1929

VALUE OF UNITED STATES EXPORTS OF COOKING AND HEATING EQUIPMENT TO CENTRAL AMERICA

Country	Wood and coal burning cook stoves and ranges	Kerosene cook stoves and ranges	Gasoline cook-stoves and ranges	Gas stoves, ranges, and hot water heaters	Parts of stoves and ranges	Electric stoves and ranges	Other electric cooking and heating appliances	Total (oil burners excepted)
British Honduras								
1924	$1, 214	$826	------	------	$372	------	$418	$2, 830
1925	1 416	1, 452	------	------	454	------	46	3, 368
1926	863	1, 532	------	------	1, 213	------	385	3, 993
1927	1, 323	1, 178	------	------	312	------	400	3, 213
1928	501	1, 499	$16	------	367	$43	131	2, 557
1929	581	1, 875	------	------	509	------	154	3, 119
Costa Rica								
1924	6, 650	241	------	------	134	------	1, 944	8, 969
1925	9, 506	1, 328	------	------	2, 125	------	3, 871	16 830
1926	10, 644	4, 972	------	------	1 210	------	3, 747	20 573
1927	12 336	2, 511	------	------	1, 107	------	6, 076	22 030
1928	13, 489	608	668	------	1, 914	4, 107	3, 803	24, 589
1929	9, 182	621	959	------	2, 053	8, 972	7, 267	29 054
Guatemala								
1924	5, 265	1, 154	------	------	538	------	14, 929	21, 886
1925	3, 517	191	------	------	2, 747	------	9, 110	15 565
1926	5, 607	230	------	------	960	------	24, 434	31, 231
1927	7, 686	904	------	------	1, 280	------	33 903	43, 773
1928	4, 972	913	494	------	374	18, 460	12 943	38 156
1929	1, 989	2, 037	485	------	1, 234	21, 438	15, 213	42, 396
Honduras								
1924	11, 813	1, 875	------	------	2, 420	------	2, 691	18, 799
1925	7, 999	1, 397	------	------	2, 464	------	6 625	18 485
1926	6, 449	1, 574	------	------	3, 367	------	6, 785	18 175
1927	3 701	702	------	------	1, 570	------	4 475	10 448
1928	7, 294	1, 173	75	------	3, 264	989	2 129	14, 924
1929	10, 614	1 918	188	------	2, 316	1, 856	2, 409	19, 301
Nicaragua								
1924	7, 366	742	------	------	1, 047	------	269	9, 424
1925	7, 563	880	------	------	1, 609	------	327	10 379
1926	5, 728	348	------	------	949	------	676	7, 701
1927	5, 860	2, 467	------	------	1, 484	------	844	10 655
1928	6, 979	1, 773	237	------	1, 633	636	293	11, 551
1929	7, 612	2, 450	527	------	1, 190	4, 630	1, 257	17, 666
Panama								
1924	1, 873	5, 431	------	$35, 409	6, 796	------	15, 172	64, 681
1925	4, 480	10, 509	------	19, 650	15, 882	------	17, 676	68, 197
1926	1, 583	9, 838	------	13, 342	15, 437	------	27, 007	67, 207
1927	2 287	15 602	------	17, 622	15, 927	------	20, 933	72, 371
1928	2, 612	9, 638	481	27, 327	22 793	5, 091	8, 164	76, 106
1929	2, 182	15, 038	3, 206	32, 048	18, 101	11, 626	18, 824	101, 025
Salvador								
1924	1 537	55	------	------	338	------	1, 523	3 453
1925	1, 597	815	------	------	271	------	1, 139	3, 822
1926	897	1, 256	------	------	356	------	2, 765	5, 274
1927	401	1, 452	------	------	653	------	2, 052	4 558
1928	1 004	2, 117	------	------	522	264	649	4, 556
1929	1, 427	1, 464	63	------	512	671	1, 427	5, 564

Gas stoves, ranges, and water heaters were omitted from the foregoing table, except for exports to Panama, as the latter is the only country in this group where manufactured gas is available No separate classification was given to gasoline stoves and ranges prior to 1928, and these are included under kerosene cookstoves and ranges Prior to 1928 electric cookstoves and ranges are included with electric heating and cooking devices, so that it is only subsequent to 1927 that any figures are available showing the exports of such stoves and ranges from the United States

The best markets in this group are Panama, Guatemala, Costa Rica, and Honduras, while sales of cooking and heating appliances to British Honduras, Nicaragua, and Salvador are relatively unimportant

The best distributors in Central America for cooking appliances are hardware dealers and general importing houses The usual and general credit terms granted to purchasers of such equipment are from 30 to 90 days' sight draft, and c i f quotations are generally preferred on this type of merchandise

PANAMA

Fred C Rogers, Clerk to Commercial Attaché, Panama City

The Republic of Panama has a population of some 460,000 and offers a fairly good market for cooking and heating appliances Because of the tropical climate there is no demand for house-heating devices and only a limited demand for water heaters The purchasing power of the majority of the people is low and they are not able to buy imported cooking appliances to any great extent The most usual method of cooking among the masses is upon charcoal braziers or over open fires Frequently a 5-gallon kerosene tin is used as a brazier, this being looked upon as a very satisfactory cookstove Our total exports of cooking and heating appliances to Panama during 1929 were valued at a little more than $101,000

Manufactured gas is available in Panama City and Colon, and the use of gas water heaters and cookstoves is now becoming more common in the better-class homes in these cities The gas companies sell stoves, ranges, and water heaters on the installment plan and are the chief outlets for this kind of equipment During 1929 the United States exported gas water heaters and ranges valued at $32,048 to Panama, these accounting for about 30 per cent of all American exports of heating and cooking appliances to that country. It is estimated that some 6,000 gas cookstoves are in use in Panama, the principal users being the North Americans residing there

The market for kerosene cookstoves in Panama is found among those people who have progressed beyond cooking with charcoal, but who can not yet afford to purchase or use gas for cooking There is also some demand for such stoves in the interior districts where gas is not available, but at best the number of people living in small towns and rural districts in the Republic is not great The United States sold this market during 1929 kerosene cookstoves and ranges valued at $15,038, as compared with sales amounting to $9,638 during the preceding year American gasoline cookstoves are gaining in popularity in Panama, as shown by a substantial gain in sales of such stoves during 1929, these having been valued at $3,206 during that year as compared with less than $500 in 1928

The increasing popularity of electric cookstoves and ranges in Panama is demonstrated by the fact that United States exports of such stoves to that country rose from a value of $5,091 in 1928 to $11,626 in 1929 Our sales of other domestic electric cooking and heating appliances to that market increased from $8,164 in 1928 to $18,824 in 1929 Panama also buys from the United States a considerable quantity of parts for stoves and ranges, these purchases during 1929 were valued at $18,101, and were made up chiefly of parts for gas stoves and ranges, as the number of coal and wood burning ranges in use in the Republic is not large

Panama City and Colon, at opposite ends of the Canal, are the two most important distributing centers in the Republic of Panama

Panama City leads in commercial importance and as a distributing center for interior towns and villages Sales in the Canal Zone, which is controlled by the United States, are of considerable importance and also affect to a certain extent the sales in the Republic of Panama The Canal Zone authorities purchase all imported goods through their purchasing branches located in New York, Washington, and San Francisco, and sell all kinds of goods through their commissaries to those persons employed in connection with the operation and maintenance of the Panama Canal The Canal Zone authorities have made arrangements with the local gas companies whereby these are allowed to supply the entire demand for gas ranges and cookstoves and water heaters, the Government organization refraining from their importation and sale Panama Canal employees get all supplies through the stores maintained by the Panama Canal Zone authorities, who import goods free of duty, so that the market created by the needs of such employees, which are quite numerous, is in the nature of a domestic rather than a foreign market, and should not be considered when estimating the possibilities of Panama as an export field

The usual credit terms given importers of cooking and heating appliances in Panama are 30 to 60 day sight draft C i f quotations are customary and are preferred There is no local manufacture of cooking and heating appliances, and the United States supplies practically the entire demand The best distributors for cooking appliances are the hardware dealers, most of whom do a direct importing business

WEST INDIES

Prepared in the Iron and Steel Division

The upper class of the population of the West Indies is made up of a few planters, merchants, professional men, and Government officials, while the lower classes include a large number of agricultural workers and day laborers The purchasing power of the latter groups is not high and it is only among the upper classes that there is any market for cooking and heating appliances Domestic servants are easily obtainable, at relatively low wages, and any housewife who is in the market for imported cooking and heating appliances has servants to do all housework, therefore is not particularly interested in buying expensive equipment to be used by servants who very probably would not take proper care of it

Charcoal is the usual fuel employed for cooking throughout the islands, being used by the poor people in small braziers and by the more prosperous classes in built-in stoves Wood is also widely used for cooking in stoves and on open hearths, the latter system being employed extensively by the poorer people in the country districts Kerosene and gasoline stoves are supplanting charcoal and wood burners to some extent and are steadily gaining in popularity Electrical cooking and heating appliances are also finding a growing demand There is no need for house-heating appliances, as the climate of the islands is tropical, and there is only a limited demand for water heaters

The next table shows the value of exports of cooking and heating appliances from the United States to the Caribbean group, which is composed of the following islands and countries—the Bermudas, the Barbados, Jamaica, Trinidad and Tobago, other British West Indies, Dominican Republic, Dutch West Indies, French West Indies, Haiti, and the Virgin Islands of the United States Cuba and Porto Rico are not included as they are being given separate consideration

UNITED STATES EXPORTS OF COOKING AND HEATING APPLIANCES TO THE LESSER WEST INDIES

Article	1924	1925	1926	1927	1928	1929
Wood and coal burning stoves and ranges	$9, 606	$11, 260	$10, 116	$10, 315	$13, 022	$6, 801
Gas stoves, ranges, and water heaters	3, 706	6, 186	4, 315	5, 874	3, 726	18, 551
Oil and gasoline stoves	16, 663	24, 581	25, 907	34, 879	--------	--------
Kerosene cookstoves and ranges	--------	--------	--------	--------	26, 259	32, 984
Gasoline cookstoves and ranges	--------	--------	--------	--------	7, 783	7, 688
Parts of stoves and ranges	13, 712	17, 474	16, 634	18, 773	20, 325	24, 747
Domestic electric heating and cooking devices	7, 585	9, 561	12, 551	20, 262	--------	--------
Electric ranges	--------	--------	--------	--------	13, 350	9, 802
Other electric domestic heating and cooking devices	--------	--------	--------	--------	12, 536	15, 757
Total	51, 272	69, 062	69, 523	90, 103	97, 001	116, 330

The foregoing countries represent what might be termed the lesser markets of the West Indies, while Cuba and Porto Rico, which are being given individual consideration, might be considered as the major West Indian markets Although none of the smaller markets are of any great importance individually, the aggregate amount of cooking and heating appliances sold to these is not unimportant Furthermore, it is a growing market, as evidenced by the fact that exports of such appliances from the United States to this group increased from about $51,000 in 1924 to more than $116,000 in 1929. This increase came about gradually, and it is believed that it will be maintained

Of this group the Bermudas are one of the largest buyers of coal and wood burning stoves, purchasing from the United States during 1929 some $1,500 worth of such stoves, also about $13,000 worth of parts of stoves

Exports of gas stoves and ranges from the United States to the lesser markets of the West Indies increased from a value of about $4,000 in 1928 to $18,551 in 1929, of these exports the Netherland West Indies took more than 50 per cent of total There are no public gas companies operating in these islands, and the stoves purchased must have been for use in connection with private gas supplies

Exports of kerosene and gasoline cookstoves from the United States to this group made up the most important item under cooking and heating appliances and amounted to some $40,000 during 1929 Kerosene stoves accounted for about $33,000 and gasoline stoves for about $7,000, sales of these latter have not shown any increase as compared with the preceding year Among these markets the Bermudas, the Netherland West Indies, and the Dominican Republic have been the largest importers of kerosene and gasoline cookstoves from the United States

Exports of electric cooking and heating devices from the United States to this group increased from a value of $7,585 in 1924 to more than $25,000 during 1929 During 1929 the Dominican Republic was our best market in this group for such devices, buying from

American manufacturers some $5,400 worth of domestic electric cooking and heating devices and accounting for about 30 per cent of total United States exports to these markets

REPRESENTATION AND CREDIT TERMS

There is relatively little intercommunication between the more important islands of the West Indies and it is best to appoint an agent in each island, as it is not feasible for one dealer to cover several of the islands except those in the Windward and Leeward groups The market in none of the islands is large enough to justify the appointment of more than one agent for each island or group The designation of agents in the following towns is considered to be the best method of covering the territory under consideration—Hamilton, Bermuda, to take care of those islands, Nassau, in the Bahamas, to cover that group, the city of Santo Domingo to cover the Dominican Republic and Haiti, and Willemstad, Curacao, for the Dutch West Indies The islands of Trinidad and Tobago, the Windward and Leeward islands, which include the French West Indies, and the Barbados can be taken care of by an agent located at Port of Spain, Trinidad, or at Bridgetown, Barbados The advantage of having an agent located at Port of Spain, Trinidad, is that he can also work the Orinoco Basin, as this section of Venezuela does most of its trading through Trinidad The market for cooking and heating appliances in the Virgin Islands of the United States is very small and can be handled usually from Porto Rico

Sales to any island of the Windward and Leeward group or the French West Indies are not large, but sales to all of these together are of some importance According to the statistical classification of exports from the United States, the Bahamas, the British Virgin Islands, and all the British islands of the Windward and Leeward group (Barbados not included) are classified as "Other British West Indies," and these during 1928 imported some $17,000 worth of heating and cooking equipment from the United States

Credit terms vary, but the usual practice is to grant from 60 to 90 days' sight on sales of cooking and heating appliances in the Caribbean area C i f quotations are desirable, but f o b port of embarkation are acceptable

About the only means of advertising in the lesser Caribbean markets is through the daily press, as there are no trade publications or magazines published there having a wide circulation Correspondence addressed to persons residing in the Dominican Republic should be in Spanish, if possible, unless it is known that English is acceptable The rest of the islands, except the French West Indies, Haiti, and the Netherland West Indies, use the English language, and even in the Netherland West Indies letters in English are understood, as this is very largely the language of commerce there

CUBA

O. R. Strackbein, Assistant Trade Commissioner, Habana

Cuba offers a fair market for American cooking and heating appliances, our sales of such equipment to that country having averaged around $200,000 annually during the last six years The Cuban market is subject to sharp fluctuations, for when sugar is selling well everybody buys heavily, and when it is down no one buys anything except the absolute necessities.

As the climate is tropical there is no demand for house-heating equipment, but there is a fair demand for water heaters in the city of Habana, where manufactured gas is available. The most widely used fuel for cooking is charcoal, which is burned in braziers, in built-in grates, and in ovens. Charcoal is comparatively cheap and competes successfully even with manufactured gas in Habana as a cooking fuel. In the other Cuban cities charcoal is used almost to the exclusion of other fuels for cooking.

The following table shows the value of exports of cooking and heating appliances, except oil burners, from the United States to Cuba from 1924 to 1929.

UNITED STATES EXPORTS OF COOKING AND HEATING APPLIANCES TO CUBA

Article	1924	1925	1926	1927	1928	1929
Wood and coal burning cookstoves and ranges	$23,948	$28,672	$20,409	$15,260	$11,169	$11,116
Gas stoves, ranges and water heaters	94,246	92,473	108,206	72,785	39,956	23,822
Oil and gasoline stoves	23,273	33,420	26,170	10,213		
Kerosene cookstoves and ranges					17,206	8,306
Gasoline cookstoves and ranges					12,563	4,319
Parts of stoves and ranges	30,009	40,815	44,898	36,767	23,652	25,491
Electric domestic cooking and heating devices	57,561	108,466	53,163	45,389		
Electric ranges					7,063	13,448
Other electric domestic heating and cooking devices					20,355	18,408
Total	229,037	303,846	252,846	180,414	131,964	104,910

Wood and coal burning cookstoves and ranges are not widely used throughout Cuba, as this type of equipment is not well adapted to the hot climate there. Even very small Cuban villages have bakeries, where all the bread consumed locally is baked, and these bakeries will also bake meats for customers when this is desired. The rest of Cuban cooking consists of frying or boiling, which in most instances can be done efficiently over charcoal or, in the rural districts, over wood burned on an open hearth.

One of the most important items in United States exports of cooking and heating appliances to Cuba is gas stoves, ranges and water heaters, sales of which amounted to almost $24,000 during 1929, or some 20 per cent of the total exports of cooking and heating appliances from the United States to that country. There are said to be some 17,000 consumers of manufactured gas in the city of Habana, and some 700 users of gas sold in drums in the city of Matanzas. These are the only two cities where there is any demand for gas-burning equipment, as gas is not obtainable elsewhere in Cuba.

Kerosene and gasoline stoves are rapidly gaining in popularity and are supplanting charcoal-burning equipment in the suburbs of Habana, in other Cuban cities, and in rural districts where manufactured gas is not available. Gasoline stoves have met with considerable popularity in this market, as evidenced by the fact that exports of these from the United States to Cuba were valued at $4,319, compared with $8,306 for exports of kerosene stoves. In most markets sales of kerosene stoves are many times greater than those of gasoline. Alcohol stoves have also been popular where alcohol is cheap, but sales of these decline with any increase in the price of the fuel they consume It is believed that possibly some of the stoves imported as gasoline stoves were used with alcohol as a fuel

Sales of American domestic electrical cooking and heating devices reached considerable proportions during 1925 but have declined since that date Competition in all types of electrical equipment in Cuba, both between various American manufacturers and with European producers of such equipment, has been very active and most of the Cuban dealers are overstocked with domestic electrical appliances Electricity in most of the Cuban towns is expensive, making the operation of electrical appliances somewhat costly For the last six years the annual average of American sales of electric domestic cooking and heating appliances was around $54,000 while such sales during 1929 declined to about $32,000

The American manufacturer of cooking and heating equipment meets with little competition from the European manufacturer except in small cooking equipment using kerosene, gasoline, and alcohol, and in the field of small electric heating and cooking devices

American export statistics occasionally show a considerable number of house-heating boilers and radiators as exported to Cuba, but it is believed that these are boilers to be used for industrial purposes, as houses in Cuba do not have central heating plants and there is no need for such heating, even during the winter months

The most effective method of selling heating and cooking equipment in Cuba is by appointing an exclusive agent for the whole island, a dealer who will be in a position to carry stock and who has travelers covering the island

Usual credit terms are from 60 to 90 days' sight It is customary to make c i f quotations but these are not indispensable The daily press and magazines with local circulation are good advertising mediums in Cuba Most agents expect to be supplied with advertising material, such as descriptive literature and clichés, and in some instances an advertising allowance is asked for

PORTO RICO

Assistant Trade Commissioner J R McKey, San Juan

The Porto Rican market for cooking and heating appliances is limited by the relatively small per capita purchasing power of the population Since the climate is tropical there is no demand for house-heating devices and only a limited demand for water heaters for domestic purposes The market is entirely dominated by American cooking and heating appliances, as none are manufactured locally, nor are any imported from any foreign country It is estimated that the total sales of cooking and heating appliances, including electric stoves, ranges, and other domestic electric cooking and heating appliances in Porto Rico amount to some $80,000 annually

Charcoal is the cheapest and most easily available fuel and is used very extensively for cooking In the homes of the poor people this fuel is used in a small brazier, sometimes a tin can is made to serve as a brazier In the homes of more prosperous Porto Rican families the built-in tile-covered box containing three or four charcoal grates is used for cooking Because of the increasing cost of charcoal caused by the growing scarcity of wood, from which it is made, this fuel is giving way to others, chiefly kerosene, in the cities However, charcoal will long prevail in the interior, not only in the rural districts but in the towns, as many town residents, even in San Juan and Ponce, the largest cities, own mountain lands and allow their tenants to burn charcoal on a share basis, the owner being thus supplied with fuel without any cash outlay

Porto Ricans are quick to adopt anything new and are deterred from using more modern cooking devices, as well as other modern equipment for the household, first, by the lack of means and next, by the fact that the household work, even in many poor families, is largely done by servants The housewife is not inclined to provide the conveniences for servants that she would desire if she were doing the work herself, moreover, such conveniences often deteriorate rapidly through careless use by servants In spite of this there is a constant and steady increase in the use of modern ranges using gas, kerosene, and electricity Gas is available in the two largest towns, San Juan and Ponce, and in these gas stoves and water heaters are steadily gaining ground The use of kerosene cookstoves as a substitute for charcoal burners is increasing in all parts of the island, but chiefly in those towns where gas is not available Very few gasoline cookstoves have been sold, though there is one stove on the market which is advertised to burn either kerosene or gasoline Electric and gas water heaters are gaining in popularity, and the use of all kinds of electrical cooking equipment is on the increase

The electric power and gas companies, and a number of hardware and general stores, handle heating and cooking appliances The gas and electric companies sell such equipment on the installment plan, while the merchants sell upon an easy-payment system which amounts to the same thing The market for gas ranges is practically controlled by the gas companies, and it would be difficult to compete with them on this line, but it should be readily possible to enter the market for kerosene cookstoves and ranges, as no one organization has any advantage in this line

Any part of Porto Rico can be easily reached from San Juan, the commercial center of the island There is not a sufficiently large demand for cooking and heating appliances to make it worth while for a dealer to push an article unless he has the whole territory The hardware stores, general merchandising houses, and department stores in Porto Rico are the most satisfactory distributors for cooking and heating appliances, as they are wholesalers and retailers as well as direct importers and sell to the retail trade both in the towns where they are located and in other towns of the island

The usual terms given to Porto Rican importers of cooking and heating appliances are 60 days, with 2 per cent discount for cash within 10 days of receipt of goods

ARGENTINA

Charles H Ducote, Assistant Trade Commissioner, Buenos Aires

Although different sections of Argentina vary widely in climate, those regions in which the population is most highly concentrated, such as Buenos Aires Province and the southern part of the Province of Santa Fe, are in the Temperate Zone In this section the period during which atmospheric conditions are such as to require artificial heating of some kind for comfort normally begins about the middle or end of May and lasts until about the beginning of October, or about four and one-half months During these winter months the relative humidity of the air is very high, especially during June and July, and, therefore, although the temperature rarely, if ever, drops to the freezing point, the high humidity makes the cold damp and penetrating, and makes artificial heating most desirable

Some years ago the idea prevailed that the climate of Argentina was very temperate and its winters mild, and that there was no real need for artificial heating, and, moreover, that artificially heated air constituted a menace to health, and hence should be avoided As a result, it was customary in those days for the people to bear the discomfort of the cold and dampness which characterize Argentine winters In recent years conditions have changed greatly, and to-day a very progressive attitude prevails toward the adoption of new devices, innovations, and ideas, making for greater comfort in the homes, offices, and amusement centers

UNITED STATE EXPORTS

The following table shows exports of cooking and heating appliances from the United States to Argentina from 1924 to 1929

UNITED STATES EXPORTS OF COOKING AND HEATING APPLIANCES TO ARGENTINA, 1924–1929

	1924	1925	1926	1927	1928	1929
Coal and wood burning cookstoves and ranges	$21, 586	$34, 248	$17, 394	$18, 684	$24, 471	$15, 510
Heating stoves and warm air furnaces	6, 471	5, 109	1, 961	844	3, 269	1, 387
Gas stoves, ranges, and water heaters	995	5, 887	4, 454	12, 283	58, 189	45, 225
Oil and gasoline stoves	12, 218	12, 175	40, 380	19, 153	--------	--------
Kerosene cookstoves and ranges	--------	--------	--------	--------	10, 619	76, 741
Gasoline cookstoves and ranges	--------	--------	--------	--------	10, 218	4, 722
Parts of stoves and ranges	8, 201	8, 702	6, 711	9, 383	7, 439	11, 783
House-heating boilers and radiators	865	14, 875	3, 510	35, 242	9, 028	3, 685
Domestic electric cooling and heating devices	54, 384	71, 873	137, 602	117, 468	--------	--------
Electric cookstoves and ranges	--------	--------	--------	--------	7, 032	17, 456
Other domestic electric cooking and heating devices	--------	--------	--------	--------	49, 105	50, 864
Total	104, 720	152, 869	212, 012	213, 057	179, 370	227, 373

Kerosene cook stoves and ranges make up the largest single item in United States exports to Argentina, electrical cooking and heating devices take second place, though our sales of these latter have shown a decline during recent years

NATURE OF THE MARKET

In studying the Argentine market for household cooking and heating appliances and related equipment, it is well to bear in mind that in the middle and upper classes household work and cooking are usually done by servants, and little or no attention is given by their employers to modern heating and cooking appliances which may lessen the expenditure of effort, which are economical in the use of fuel, and which have devices for the automatic regulation of cooking and heating Cooks themselves, if they have any preference, usually prefer the simple, sturdy, old-fashioned stoves and heaters which are familiar to them Stoves with delicate parts and intricate controls are undesirable, as they are easily broken by clumsy and careless servants

However, in the majority of homes household tasks, such as cooking and tending to heating equipment, usually devolve upon members of the household. Here, also, equipment in use is simple in construction, and price is generally the determining factor favoring the purchase of one piece of apparatus as against another.

All the common fuels are available in Argentina, but coal and wood are most generally used in cooking and heating; gas is used but to a much smaller extent. Coal must be imported, and is usually brought in from the United Kingdom. Prices in the local market range from $10 a ton for Cardiff coal to $13.50 for the so-called Glasgow coal. Anthracite is quoted at almost $21 a ton. Kerosene is produced locally as well as imported. The local product is sold at retail at about $1.90 per 5-gallon can, as against $2 to $2.15 for the imported product.

GENERAL HEATING INSTALLATIONS

A substantial increase has been noted during the past two or three years in the installation of central heating plants in apartment houses and in the modern office buildings which are being constructed in the business centers of the larger cities. Formerly such buildings were erected with no provision whatever for heating of any kind, but now a large proportion of new buildings of these types are equipped with heating plants (usually steam plants) as a matter of course. There have been a few installations in office buildings in the city of Buenos Aires of up-to-date systems providing for scientific ventilation of all the rooms and with equipment for heating the air in winter as it enters the distributing ducts. In some instances refrigeration equipment is also connected for cooling the circulating air during periods of warm weather.

The advantages of these systems are becoming recognized more and more, and there should be an increase of all installations of this type in office buildings. Theaters may also be expected to add to the demand for combined heating and ventilating systems.

RADIATORS

Imports of radiators are constantly on the increase, the quantity brought in during 1928 having been more than double that entered during 1925. Although in former years over one-fourth of the radiators brought into the country were imported from the United States, at present American manufacturers have been placed in an insignificant position by the competition of German, Belgian, and French manufacturers. Details for 1925, 1926, and 1927 are shown in the next table. The total for 1928 was 1,677,849 kilos.

IMPORTS OF RADIATORS INTO ARGENTINA, 1925–1927

Country	1925	1926	1927
	Kilos	*Kilos*	*Kilos*
Germany	409,866	725,622	801,606
Belgium	60,478	282,508	222,018
France	77,842	237,214	323,528
United Kingdom	203,896	54,980	2,202
United States	7,717		2,570
All other countries	52,644	15,743	62,949
Total	812,443	1,316,067	1,414,873

While it would be extremely difficult to arrive at a figure giving the percentage of buildings in Argentina provided with central heating systems, in recent years a majority of the office buildings and important apartment houses that have been constructed in Buenos Aires have been equipped with central heating systems of the steam type A large demand is thus created for radiators, boilers, heat regulators, and steam fittings

Radiators used in Argentina are usually somewhat different from those commonly installed in the United States, being smaller and lighter and having a smaller cross-section of steam compartment Floor radiators are usually about two-thirds the height of those commonly used in the United States Radiators imported from Europe usually do not have the smooth surface of American radiators, and consequently do not present as good appearance, so that in many cases they are concealed in recesses in the wall, under closets, or other places European radiators are lower in price and dominate the market

Some installations of low-pressure vacuum steam-heating systems have been made and are giving satisfaction No doubt more installations of this type will be made in the future, in spite of the greater cost of the piping system and the necessity for absolute air-tightness of the radiators and valves Should this occur, some increase may result in imports of American radiators, because of their better quality and their adaptability to the exacting requirements of low-pressure vacuum systems

A few modern apartment houses recently constructed in Buenos Aires have installed steam radiators heated by gas in each apartment It is said that there are at present about 300 apartments so provided and that the systems are giving satisfaction However, it is not believed that there will be a very extensive use of such systems, as the high price of gas makes the cost of operation prohibitive to the average family

MUNICIPAL REGULATIONS

In the municipality of Buenos Aires boiler installations must be constructed in strict adherence to the Reglamento General de Instalaciones Mecanicas, which has been prepared by the Direccion General de Instalaciones Electricas, Mecanicas, y Alumbrado of the municipality Before being placed in operation boiler installations are subject to inspection by the aforementioned municipal bureau Failure to observe the requirements of the "Reglamento" may necessitate the payment of fines, removal of the apparatus, or changes in the installation.

HEATING STOVES

Although the demand for central heating equipment for use in houses and apartment houses is on the increase kerosene or wood stoves and other types of individual heating units are the type of equipment most commonly used Most of the houses using artificial heat are provided with kerosene stoves, heaters burning coal, fireplaces burning quebracho wood, or with some similar type of heating equipment Few gas or electrical heaters are used, because of the high cost of both gas and electrical energy

In detached suburban homes, in the residential buildings in the smaller cities and towns, as well as in homes in the rural districts there is an increasing demand for some economical form of heating plant which can give the same relative comfort, on a small scale, as is enjoyed by the occupants of large apartment buildings in the cities Such a heating unit is the "Salamander" heater, burning wood or coal, which gives out a uniform supply of heat with little inconvenience in the way of upkeep and operation The demand for "Salamanders" is supplied mainly by the French firm manufacturing a product under the trade-mark by which this type of stove is popularly known There is a general impression that the French product is superior to those of competitive manufacture, which are principally German The price demanded for the French installation is, at the lowest, $63, this being for an installation capable of heating a space of about 75 cubic meters Installations are also available for heating 120 to 150 cubic meters The most popular size costs about $84, prices ranging up from that point, according to finish and heating capacity, to about $230 Considerable success has been met by German firms in marketing, at about half the French prices, an article of similar general appearance and of satisfactory quality

INCREASED USE OF GAS

During the past few years increasing use has been made of gas in heating and cooking appliances, in spite of its high cost (in Buenos Aires artificial gas is sold at $0 08505 per cubic meter), and the belief is becoming more widespread that gas is a more satisfactory fuel for the modern home than coal, wood, or kerosene Especially do owners of apartments and newly constructed houses favor the use of gas Living standards in Argentina, particularly in Buenos Aires, are changing rapidly Apartment houses, which are constantly increasing in number, do not have facilities for the delivery and storage of coal for the individual tenants, hence the use of gas is particularly convenient and desirable

The principal gas company in Argentina has been conducting an efficient publicity campaign with the object of increasing the consumption of this fuel Although the campaign was begun only about six years ago, at which time the company was supplying about 30,000 consumers, such success has attended the company's efforts that, at the end of 1929, the number of consumers had increased to over 60,000, and the demand for gas had more than doubled A new industrial section was recently established by the gas company with the object of increasing the use of gas in local industrial establishments Already between 400 and 500 industrial consumers are being supplied from the company's mains, and indications point to increasing demand for gas from industrial organizations.

KEROSENE HEATERS

Another type of heating unit which is widely used is the kerosene stove, thousands of which are sold each year throughout Argentina One of the best known is of German manufacture, the largest unit of which is sold to the public at about $13. This stove is remarkable for the tall, small diameter internal heating space, which warms up very quickly and maintains a steady high temperature and uniform heat radiation Imitations of this stove of European manufacture sell for about 24 pesos, but are much inferior in quality

Many varieties, perhaps over a dozen, of kerosene heating stoves of various sizes and designs are offered, some selling for as little as 12 pesos These low-grade products, however, operate so inefficiently that the market may reasonably be expected to show little increase in the future.

That the Argentine public is becoming more inclined to use artificial heating and is no longer convinced that artificial heat is conducive to ill health is shown by the increasing importation of kerosene stoves Argentine imports of such equipment under the general heading "heaters," believed to be composed mostly of kerosene-burning stoves, amounted to 255,771 kilos during 1927, as compared with 327,375 kilos imported during 1928 Exports of heating stoves and warm-air furnaces to Argentina from the United States in 1927 and 1928 amounted to 38 of the former, valued at $844 and 331 of the latter, valued at $3,269

In the market for kerosene stoves it is believed that probably 80 per cent of the equipment sold is of German manufacture, the higher prices of American equipment being the principal impediment to its sale in larger quantities

DOMESTIC WATER HEATERS

In studying the demand for domestic water heaters in Argentina it must be realized that hot water in the home is looked upon as a necessity by a much smaller percentage of the population than in the United States, a rough estimate of the proportion of homes making regular use of water-heating equipment being about 15 per cent

Of the many types of heaters being sold in the country gas and kerosene heaters appear to be in greater demand, and it is believed that possibilities exist for a large expansion of the market for such units in the near future In the larger cities, where a supply of gas is available, and in the suburbs of these cities, when gas-supply systems are extended, interest will no doubt be shown in water heaters of the gas type In the smaller cities and towns some other type of heater must be used, that most likely to find favor is the kerosene-burning unit

Among the important manufacturers selling gas heaters here are the German firms Junker & Ruh, and Berger, Mertig & Co One or two British firms are also finding a good market for their products All these manufacturers are obtaining splendid cooperation from the gas company in Buenos Aires and other gas companies throughout Argentina.

While foreign manufacturers are selling the majority of the heaters some competition is given by local manufacturers of such equipment Chief among local makers is the firm Dante Martini, makers of the "Celestial" heater, which they claim is now being used by over 32,000 families in Buenos Aires This heater is well made, operates with a good degree of economy, and compares favorably with imported heaters It, as well as foreign gas and kerosene heaters, is sold at $52 to $63

Some water heaters of the storage type are sold, but the demand is much less for this type than for the instantaneous heater Storage heaters burning kerosene may be purchased for about $75 complete

It is safe to say that most of the heaters of this type now selling are of American manufacture   It is not the general practice in Argentina for apartment houses to supply hot water to their tenants, so that there is no demand there for large water-heating plants such as are used in American apartment houses

COOKSTOVES AND RANGES

The vast majority of cookstoves and ranges in use in Argentina are of the coal and wood burning types   Even in cities such as Buenos Aires, La Plata, Rosario, and Bahia Blanca, coal and wood stoves are in the majority, although a strong and apparently increasing tendency may be observed in these cities toward the substitution of gas as fuel in cookstoves and ranges   In Buenos Aires about a third of the stoves and ranges are of the gas type, while of the remainder about half use wood and half coal   In the interior the use of gas is practically nil, coal and wood (to some extent, kerosene) being the fuels in common use

It is estimated that Argentina imports annually in the neighborhood of 1,500,000 kilos of cookstoves and heaters   Of those imports about 80 per cent are said to be cookstoves and ranges burning gas, kerosene, coal, or wood, the remaining 20 per cent is made up of heaters, the majority of which are kerosene burning   Germany, the United Kingdom, and the United States are the principal sources of supply, although large quantities of stoves and heaters are imported from other European countries, chiefly Sweden, France, and Belgium   Only about 15 per cent of Argentina's imports are supplied by the United States   Imports, by countries of origin, during 1925, 1926, and 1927 were as follows

ARGENTINE IMPORTS OF STOVES AND HEATERS, 1925–1927

Country	1925	1926	1927
	Kilos	*Kilos*	*Kilos*
Germany	241, 581	375, 922	356, 649
Belgium	36, 505	47, 306	44, 744
United States	196, 977	182, 111	123, 996
France	98, 266	149, 287	108, 069
United Kingdom	220, 316	379, 276	371, 133
Sweden	156, 494	65, 096	49, 946
All other countries	43, 010	122, 516	3, 118
Total	993, 149	1, 321, 514	1, 057, 655

The imports of coal-burning stoves during 1928 amounted to 528,544 kilos   Stoves, not specially classified, came in to the extent of 261,106 kilos, and imports of gas, oil, and alcohol stoves reached a total of 593,423 kilos, giving for the three classes a grand total of 1,383,073 kilos, as against 886,030 kilos for 1927, or an increase of 56 per cent

GAS COOKSTOVES AND RANGES

In the Argentine market for gas stoves the most active competition to be encountered by American manufacturers is from German manufacturers, chief among whom are Junker & Ruh, and Berger, Mertig & Co   Both these firms have branches in Buenos Aires and are actively pushing their sales, working in close cooperation with the local gas company   The stoves manufactured by these firms range in price from slightly over $42 for the 2-burner gas stove with oven and heating compartment between the oven and burners, to about $130 for the 4-burner stove with plate-warming compartment and two oven sections, one of which contains a grill The front and sides of these stoves are finished in white porcelain enamel, and corners, gas valves, and fittings are nickel plated The stoves are well put together, are economical in gas consumption, and are said to be excellent in every way

A British-made gas stove known as the "Richmond" is also sold in Argentina This stove, in the type furnished with four burners, grill, hot chamber, and enameled oven equipped with automatic temperature control, sells for about $140 cash, or 24 monthly installments of about $7 each Smaller stoves of similar finish and design sell for about $72 cash, or 24 monthly installments of about $3 36

The work of the Cia Primitiva de Gas, the principal gas company in Argentina, is an important factor in the sale of gas cooking and heating appliances This company is said to sell each month an average of about 1,000 units of all kinds, including stoves, water heaters, and gas logs Most of these are water heaters, and stoves come next in importance Although the gas company sells American stoves, as well as those of European manufacture, sales of European products are greater, largely because of the efforts of the local representatives of European manufacturers

The comparatively small share of the business in gas stoves being obtained by American manufacturers has been said to be due to (1) lower prices of European products, (2) reasonably good quality of European products, and (3) greater sales activity in the market of European manufacturers, especially German and British

KEROSENE COOKSTOVES

Indications are that the use of kerosene cookstoves is increasing throughout Argentina and that a regular increase in demand may be looked for in the future in the cities and more important towns The principal reasons for this situation are (1) lack of gas supply in most of the cities and towns, (2) lower cost of fuel for kerosene stoves as compared with a gas unit, and, (3) greater cleanliness and ease of handling fuel for kerosene stoves, as compared with stoves burning coal and wood

American stoves are known in this market and their high quality is well recognized, but, strong competition comes from German-made products which are sold at somewhat lower prices While it is true that American products are much superior in quality, appearance, and operation, to a large section of the buying public in Argentina the question of price is perhaps the most important consideration and is in many cases the determining factor in a purchase

DOMESTIC COMPETITION

The manufacture of cookstoves is a well-established industry in Argentina and is said to be sufficiently important to supply a good portion of the demand for such equipment There are about 150 stove manufacturers in the country, but only about 20 are important and worthy of consideration There is a great variation of opinion regarding the percentage of the total demand for stoves in Argentina which is supplied by local manufacturers, but a reasonable estimate would probably be 75 per cent The large majority of the stoves of domestic make burn coal or wood, or both These stoves and ranges are quite different in appearance from those manufactured in the United States As a rule they are not provided with legs but are supported by extending the sides so as to reach the floor Trimmings, instead of being nickel-plated, as in American-made stoves, are usually of polished brass The top plate is usually of cast iron and the sides and front of sheet steel It is explained that the steel sides and front, especially near the fire doors, are subjected to heavy blows through the carelessness of the native cooks, so that if these parts are made of cast iron they are often damaged

One manufacturer has been making stoves after the American model and has had some success in spite of the fact that where the American type of coal and wood stove is desired, the superior quality of the American-made product usually determines its purchase as against the locally produced article

SALES METHODS

As a rule cookstoves are handled by hardware retail firms, who purchase direct from and are exclusive sales agents for the manufacturers Although many hardware lines are sold more satisfactorily through a manufacturer's agent who calls upon the hardware dealers and works on commission, the sales of cookstoves are usually not sufficiently large to warrant such intensive methods, and the practice has been to allow stove sales to be handled exclusively by large retail firms located in Buenos Aires If such firms have branches in the most important cities in the interior, so much the better

Gas stoves are sold in a few instances by the large department stores in Buenos Aires, but their sales are not large The most important firm in the sale of gas stoves as well as gas heaters and water heaters is the Cia Primitiva de Gas, which is said to sell about 1,000 units of all kinds a month This gas company is able to offer a special inducement which assists greatly in the sale of gas appliances Its plan is that payment for appliances may be spread over several months and the various quotas or installments added to the monthly bills submitted to the customer Although the company sells German, American, and British products, there seems to be no especial attempt made to push the product of any one manufacturer The British and German firms who have branches here, however, are able to offer some assistance to the gas company in indirect sales effort, moreover, being on the ground, it is possible for them to see that the gas company gives their line the necessary attention The German firms—Berger, Mertig Co and Junker & Ruh—as well as the British firm, Richmond, have established branches here and appear to be very active

Heating stoves of the kerosene-burning type, the ones in greatest use, are sold to the public through department stores and retail hardware stores Lines of this kind are preferably handled through manufacturers' agents located in Buenos Aires, many of whom have travelling representatives covering the most important sections of the interior Retail dealers handling such lines refuse to handle a given brand of heater or other appliance when some other dealer is known to be the exclusive agent of the manufacturer Placing such a line exclusively in the hands of a retailer, therefore, limits its sales, as a rule, to those which the dealer can obtain in his own establishment.

Warm-air furnaces, air-conditioning equipment, steam-heating apparatus, radiators, boilers, heat regulators for furnaces, steam fittings, and the like, are best handled through the larger supply houses handling machinery and mechanical equipment and having technical staffs capable of designing heating and steam-supply systems

BOLIVIA

Prepared in the Iron and Steel Division

In the highlands of Bolivia, where the principal cities are located and the majority of the population reside, it is sufficiently cool at night to make some form of heating in dwellings very desirable the year round, but owing to the high cost of all fuel, it is only in the homes of foreigners and wealthy Bolivians that any heating devices are used In any event the most usual forms of heating are the open fireplace or the small electric heater Very few, if any, stoves are used, and kerosene heaters are not popular Some 80 per cent of the population in Bolivia is native Indian and lives in a somewhat primitive manner, cooking over a brazier or an open fire and using earthenware pots made locally The market for cooking and heating appliances, therefore, is entirely limited to the small number of people composing the upper classes No manufactured gas is available, so that there is no market for gas cooking and heating equipment, and there is only a limited demand for wood and coal burning stoves, since most of the people cook over braziers Wood, charcoal, and coal are all very expensive and "taquia," the local name for llama manure, is probably the most widely used fuel This is burned in wood and coal burning stoves and ranges The usual system for obtaining hot water in the homes of the wealthy is to install a tank in connection with the cookstoves, the best results being obtained by having the coil in the firebox and the hot-water tank placed in the flue above the stove so that all the heat that goes up the chimney circulates around the tank

A few German kerosene heaters retailing at $16 20 for the small size and at $39 60 for the larger size have been sold in Bolivia, but they have not met with any great popularity The air at 12,000 feet or more above sea level, where the cities of Bolivia are located, is very thin, and kerosene heaters take up too much of the available oxygen to make them desirable as a means of heating residences, although a fair demand has developed there for the small kerosene stove of the "Primus" type to be used in cooking and in heating water The most popular type is the 1-burner kind supplied by Sweden and Germany, retailing at $3 to $4 each It is estimated that some 3,000 of these are sold in Bolivia annually The smaller size is the most popular

There is a limited demand in Bolivia for small electric heaters and for electric cooking and heating devices, such as hot plates, stoves, and water heaters The United States exported to Bolivia during 1929 some $8,600 worth of electrical cooking and heating devices, while exports of all other cooking and heating devices during the same year to that country from the United States were valued at about $9,400 These figures demonstrate very plainly the smallness of the Bolivian market for cooking and heating appliances, as the United

States supplies a very fair proportion of the total demand for such equipment

BRAZIL

Gregory H Eickhoff, American Trade Commissioner

Brazil offers a fair market for American cooking appliances, but only a limited one for heating equipment Because of the tropical or semitropical climate of the greater portion of the country there is no demand for house-heating stoves or other equipment of this nature, except in the southern State of Rio Grande do Sul, where the winter months are cold enough to justify some heat in the homes Many of the people of this State are of German origin and the demand for heating stoves is supplied by domestic production and importations from Germany A few heating stoves are also sold in the highlands of the States of Sao Paulo and Parana, and gas water heaters are extensively used in those towns where manufactured gas is obtainable

As in the other Latin-American countries, charcoal is widely employed in Brazil as a fuel for cooking, even in the large cities where manufactured gas is available, it being used chiefly by the poorer classes who can afford neither to cook with gas nor to buy the necessary equipment required for such cooking Wood is used to a considerable extent, but chiefly in the country districts where gas can not be obtained Kerosene, gasoline, alchol, and electric cook stoves are meeting with an increasing demand in the suburbs where gas can not be had or for use in the plantation houses of wealthy planters Domestic service is fairly cheap in Brazil and all families even moderately well off employ servants, so that the housewife does not take as much interest in providing up-to-date cooking equipment as she would if doing the work herself

The following table shows the value of exports of cooking and heating appliances from the United States to Brazil for 1924 to 1929

United States Exports of Cooking and Heating Appliances to Brazil

Article	1924	1925	1926	1927	1928	1929
Wood and coal burning cookstoves and ranges	$2 824	$3, 411	$3, 213	$6, 771	$2, 537	$3, 618
Gas stoves, ranges and water heaters	48, 308	65, 929	67, 267	56, 616	32, 602	55, 227
Oil and gasoline stoves	3, 077	13 373	46, 535	25, 805	-	-
Kerosene cookstoves and ranges	-	-	-	-	22, 897	25, 547
Gasoline cookstoves and ranges	-	-	-	-	24, 887	16, 025
Parts of stoves and ranges	4, 689	16 672	11, 925	6, 601	15, 642	17, 090
House-heating boilers and radiators	1 372	3, 452	68	984	179	2, 396
Domestic electric heating and cooking devices	12, 654	25, 010	58, 396	38, 943	-	-
Electric cookstoves and ranges	-	-	-	-	20, 173	41, 671
Other domestic electric heating and cooking devices	-	-	-	-	24, 841	57, 640
Total	72, 924	127 847	187, 405	135, 720	143, 758	219, 214

The Brazilian market for heating and cooking appliances is highly competitive, and the American manufacturer has to meet both European and domestic competition It is estimated that the domestic production of stoves supplies about 25 per cent of the total demand in Brazil During 1927 the United States supplied about 50 per cent of all Brazilian imports of cooking and heating appliances, Germany held second place in this field with about 30 per cent, and Great Britain supplied some 10 per cent of imports

The import market for wood and coal burning ranges is limited, as evidenced by the fact that the United States during 1929 exported only about $3,600 worth of such stoves to Brazil. The domestic manufacture of stoves and ranges is of considerable importance and probably supplies more than 50 per cent of the total demand for coal and wood burning equipment in this line. The sheet-iron and enamel parts of stoves are imported from Europe and the United States, while the cast-iron parts are made in Brazil.

Manufactured gas is available in the principal towns in Brazil, and gas stoves, ranges, and water heaters are extensively used. Exports of these from the United States to Brazil during 1929 were valued at $55,227. In most instances gas stoves and water heaters are sold on the installment plan by the gas companies, making these companies the principal distributors of such equipment. Many of the gas companies are controlled by foreign capital, and the nationality of the capital invested frequently determines where the cooking and heating equipment to be handled will be bought. The companies make their purchases through their agents located in Europe or the United States.

American gas stoves and ranges are well and favorably known in the Brazilian market and account for a fair proportion of sales of such equipment, but in recent years the American product has been meeting with price competition both from the imported European product and from stoves and ranges produced in Brazil. The Brazilian production of hot-water heaters has not yet attained any considerable importance.

The price range of gas stoves produced in Brazil is from $6 for the 1-burner gas plate up to $50 for the 4-burner range with oven and hot-water tank. There is one factory of considerable importance at Sao Paulo devoted to the manufacture of a gas stove known as the "Zenith," which compares very favorably in appearance with the imported product. A 4-burner (and oven) enamel-finish stove, equipped to burn gas or kerosene, manufactured by this company sells for about $48 in Sao Paulo.

The following are prices prevailing on some imported gas stoves in Rio de Janeiro:

German gas stoves:	
Plain iron stoves, black—	
3 burners	$27.50–$52.50
4 burners	50.00
White enamel finish—	
4 burners and oven	70.00
6 burners, oven, and plate warmer	100.00
6 burners, 2 ovens, grill, and plate warmer	150.00
British gas stoves:	
Part white enamel—	
3 burners and oven	80.00
5 burners, oven, and broiler	130.00
All enamel finish— 5 burners, oven, and broiler	150.00
Canadian gas stoves:	
Part white enamel—	
4 burners and oven	60.00
4 burners, oven, and broiler	105.00

Some gas stoves and ranges are sold by individual dealers, but the gas companies are the largest distributors and they more or less establish the price at which these are to be sold.

Gas heaters for heating bath water are extensively used in the Brazilian cities where manufactured gas is available. The most popular type is the instantaneous gas heater, which is usually installed in the bathroom over the tub and which in some instances supplies hot water to the shower located over the tub as well American heaters of this type and use outnumber all others Gas water heaters are not installed in kitchens, as hot water is not used for dish washing or the laundering of clothes After clothes are washed in cold water with soap they are spread in the sun and sprinkled frequently so as to bleach them Very satisfactory results are obtained by this method of laundering

Kerosene cookstoves are used in Brazil to a limited extent, their use being curtailed by the high cost of kerosene, which sells at 40 cents a gallon in the city of Rio de Janeiro and at higher prices in the interior Kerosene stoves of 1, 2, or 3 burners are the most popular in the Brazilian market, and practically the entire Brazilian demand for these is supplied by importation, as domestic production has not yet attained any importance One stove factory in Sao Paulo makes a 4-burner stove that can be used for either gas or oil, and sells for about $48 as compared with a price of $60 and up for imported stoves of the same type The Italian "Regina," a 2-burner kerosene stove, retails for about $26 in the Rio de Janeiro market Swedish stoves in the same market retail at the following prices 1-burner type, $7 20, 2-burner, $9 60, 3-burner, $14 40

American sales of kerosene stoves in this market were valued at $25,547 in 1929, as compared with $22,897 for such sales during 1928

Gasoline cookstoves have not met with any large demand in Brazil, possibly because of the high cost of this fuel, which sells in the seaport towns for about 50 cents a gallon and even higher at points in the interior Another factor in limiting the sale of gasoline cooking equipment is that most people feel a hesitancy in allowing the average domestic servant in Brazil to handle such a highly dangerous and inflammable product as gasoline Exports of gasoline stoves from the United States to Brazil declined in value from $24,887 in 1928 to $16,025 in 1929 There is some German competition in this line, but the United States is believed to be the largest supplier of such equipment

Alcohol burners for cooking are popular in Brazil, but up to the present time almost the entire demand for these has been supplied by domestic production Most of these burners are somewhat crudely made of cast iron, and should the American manufacturer offer an efficient stove employing alcohol it is believed that it would encounter a fair market in Brazil

Electrical cooking and heating appliances have been rapidly gaining in popularity in Brazil as a result of increased hydroelectric development in that country and the more active efforts on the part of the light and power companies to increase the use of electrical appliances During recent years a number of the Brazilian power companies have been purchased by American capital, which has in most instances reorganized the companies and employed modern methods for enlarging the demand for all electrical equipment American electrical appliances dominate the market, although some competition is encountered from the European product, chiefly from Germany

American sales of electric cookstoves and ranges to Brazil rose from a value of $20,173 in 1928 to $41,671 in 1929 In areas such as Sao Paulo, where there has been extensive hydroelectric development, an effort has been made to introduce electric ranges, it being contended that the cost of operating these does not greatly exceed that of ranges using gas or kerosene as fuel All coal and kerosene has to be imported, so that electricity generated by hydroelectric power should be able to compete with these fuels

Small electric heaters for tempering the atmosphere during the winter months are becoming increasingly popular in Sao Paulo and other sections of Brazil where the winters are chilly, and there has been some success with introducing electric water heaters The value of exports of domestic electric heating and cooking devices other than electric stoves and ranges from the United States to Brazil increased from $24,841 in 1928 to $57,640 in 1929 A very considerable amount of the electrical appliances sold in Brazil are marketed by the large American and German houses maintaining branches there, or through agents who act exclusively for them

ALLOTMENT OF TERRITORY

The size of the country and difficulties of transportation make it almost impossible for one agent to cover all of Brazil, so that it is best to appoint a representative in each of the important cities There will be very little overlapping of territory, as the cities are far apart and in most instances they are not connected by any quick and easy means of transport The appointment of agents in the following cities, if it is possible to obtain them, is considered the best way to cover the Brazilian market for cooking and heating appliances

1 An agent in Para, in the northern section of the country, can cover that city and the Amazon Valley, which offers a relatively small market, but is one that is very much cut off from the rest of Brazil In point of time the city of Para is almost as close to the United States and Europe by direct steamers as it is to the cities of Rio de Janeiro and Sao Paulo, the chief commercial and industrial centers of Brazil Coastwise freight rates in Brazil are high, and for long hauls are sometimes higher than rates direct to European and North American ports

2 Working southward, the next commercial center of importance is Pernambuco This market is not very important, and a large portion of its demands is satisfied by purchases made in Rio de Janeiro, but the direct importer has the advantage over those who have purchased indirectly, and for this reason it is advisable to have a representative in Pernambuco

3 Next is Bahia, a market very similar to Pernambuco, and the same reasons apply for having an agent there, though being still nearer to Rio de Janeiro it does less direct importing

4 Rio de Janeiro, the largest city in Brazil, is of considerable commercial importance There is great commercial rivalry between Rio de Janeiro and the city of Sao Paulo Many firms in Rio de Janeiro have offices in Sao Paulo or are branches of Sao Paulo firms, so that sometimes one agent can very well take care of both these cities The State of Minas Geraes, which is the most populous in Brazil and which offers a fair market for cooking and heating appliances, can best be handled by an agent in Rio de Janeiro, as that port is the point of entry for imported goods intended for Bello Horizonte and other towns in Minas Geraes

5 The Sao Paulo market in itself is very important, and this city has a better back territory to draw on than any other in Brazil, it being the commercial center for the coffee-growing districts An agent located here can take care of the States of Sao Paulo and Parana and that part of southern Brazil which is not commercially dependent upon Porto Alegre The more important houses in Sao Paulo and Rio de Janeiro have travelers that pretty well cover the country,

except that they do not make very frequent trips to Para, the Amazon Valley, or southern Brazil, because of the time and expense involved in making such journeys

6 Porto Alegre, in the State of Rio Grande do Sul, is the commercial center for a prosperous stock-raising and farming country and offers a limited market for cooking and heating appliances With regard to the rest of Brazil it occupies somewhat the same position as Para on the north, though it is not so isolated as that market Unfortunately, there are few, if any, direct steamship lines from the United States to Southern Brazil although this area has direct sailings from German and other European ports The American manufacturer is thus placed at a disadvantage in that market As most American goods consigned to Porto Alegre must be transhipped at Santos or some other Brazilian port, they have to be burdened with the payment of high coastwise freight charges

The ideal distributor for cooking and heating appliances in Brazil would be the large house with branches in various towns that would be willing to carry stock, but there are very few such houses, and most of them already have all the lines they care to handle Cooking and heating appliances in Brazil are sold chiefly by the hardware dealers, and in some cases by small stores that deal almost exclusively in stoves and cooking utensils In the smaller markets, such as Para, it is satisfactory to appoint one live retail hardware merchant as sole agent, as he can take care of all the business, but in the larger cities it is a mistake to appoint any retailer as exclusive agent, as other retailers will not buy from him Where it is impossible to get the large house carrying stock to act as representative, probably the next best method of selling cooking and heating appliances is by appointing as agent a manufacturers' representative who will canvass the retail trade and take orders on a commission basis Much of the electrical cooking and heating equipment sold in Brazil is handled by the large American and European companies having branches or exclusive agents located there, although some such equipment is placed through commission agents

QUOTATIONS AND CREDIT TERMS

Quotations for cooking and heating appliances should always be c i f some Brazilian port, as the trade is accustomed to these and will not consider buying on f o b quotations unless it is unable to get any other The manufacturer who quotes c i f prices to the Brazilian merchant has a decided advantage over those who are unwilling to render this service

If he obtains money or credit from his local bank the Brazilian merchant will have to pay from 10 to 12 per cent per annum, so that the granting of credit by the manufacturer is a matter of considerable importance to him Credits of 90 days after sight or 120 days after date are usually allowed to reliable Brazilian importers The extension of credits in the Brazilian market is a matter of extreme importance and one to which the American manufacturer should give careful consideration The European exporters, in their endeavor to obtain a strong hold on the market, usually grant long terms of credit and not infrequently ship on consignment Care should be taken that credit of any kind is given only to reliable firms Since interest charges in the United States are so much below those prevailing in Brazil the merchant there does not object to paying interest at American rates on the credit granted and rarely requests any abatement of interest.

CHILE

Ralph H Ackerman, Commercial Attaché, Santiago

A greater part of the demand in Chile for cooking and heating appliances other than electrical is supplied by domestic production The domestic industry offers a wide range of such devices which by their low price attract a certain class of buyers, but where appearance and lasting qualities are desired the imported article holds the market Germany is the largest supplier in the Chilean market of heating and cooking stoves, gas stoves, and water heaters, supplying about 50 per cent, while the United States supplies about 25 per cent of all such imports

American sales of cooking and heating equipment in the Chilean market during the past six years showed decided fluctuations, having been valued in 1924 at some $40,000, in 1926 at $76,000, in 1928 at $43,000, and in 1929 at $101,572 During 1929 sales of wood and coal-burning cookstoves accounted for about 10 per cent, gas ranges, stoves, and water heaters for 28 per cent, and electrical cooking and heating devices for 42 per cent of the total of American sales of these types of equipment in the Chilean market Exports of electric cooking and heating devices from the United States to Chile showed a gain in value of a little more than 300 per cent in 1929 as compared with the preceding year, and these, with gas stoves, ranges, and water heaters apparently constitute the bulk of the sales of American cooking and heating appliances in Chile

The following table shows the value of United States exports of cooking and heating appliances to Chile for 1924 to 1929.

UNITED STATES EXPORTS OF COOKING AND HEATING APPLIANCES TO CHILE

Article	1924	1925	1926	1927	1928	1929
Coal and wood burning cookstoves and ranges	$11,787	$32,615	$18,563	$17,208	$6,055	$9,813
Heating stoves and warm-air furnaces	657	2,380	3,128	1,120	368	1,026
Gas stoves, ranges, and water heaters	8,065	6,504	13,087	7,564	10,456	28,265
Oil and gasoline stoves	5,549	6,471	8,852	6,281		
Kerosene cookstoves and ranges					4,088	4,450
Gasoline cookstoves and ranges					4,085	3,678
Parts of stoves and ranges	3,334	5,038	15,943	2,698	4,009	7,253
House-heating boilers and radiators	5,178	6,488	2,505	6,860	1,184	4,460
Domestic electric cooking and heating devices	5,467	15,080	13,969	23,562		
Electric cookstoves and ranges					3,944	16,542
Other domestic heating and cooking devices					9,494	26,085
Total	40,037	74,576	76,047	65,293	43,683	101,572

HEATING STOVES

Relatively few homes and only the newer office buildings in Chile use heating stoves There is a growing sentiment, however, in the country in favor of heating during the winter months for better health and for the prevention of colds, pneumonia, and bronchial troubles The death rate during the winter months of July and August from these causes is alarmingly high and demonstrates very clearly the desirability and necessity of heating homes even in the central section of the country The upper classes are steadily increasing the use of heating devices in their homes, and almost all the recently constructed office buildings provide heat during cold periods

The purchasing power of the laboring classes is low, and very few laborers make any attempt to heat their dwellings, as all fuel is very expensive In southern Chile, which is only sparsely settled, the winters are more severe, wood is relatively cheap, and the use of stoves for heating is the usual custom during the cold season

The open brazier for heating is still used to some extent both in the cities and in the rural districts These braziers are merely metal containers of copper or iron burning either charcoal or coke, and, after the poisonous gases have been dissipated, are placed inside the house

A heater locally known as the "Salamander" meets with a good demand, as its appearance is more decorative and it takes up less room than the average stove These heaters are made in a wide variety of finishes, but the enameled type is preferred The French and Belgian manufacturers appear to get most of the business in this line in Santiago and Valparaiso, as their prices are low and their product highly ornamental So far as is known no American stove manufacturer offers this type of heater in this market

Heaters of both the cylindrical and square types are popular in Chile Chilean manufacturers attempt to compete with the imported stoves, but they have not been able to perfect their product so as to give long service and the public shows a distinct preference for the foreign-made article German and Belgian manufacturers supply a greater part of the Chilean trade in imported wood and coal burning heaters They offer a well-finished product with a durable inner lining and good grates at prices below those of their American, French, or British competitors and have established their trademarks so well that the public is familiar with certain brands and asks for them by name

Prices vary with the size and design of the stove One well-known Belgium stove, the "Tortul," is sold to the importer at the following prives f o b factory Cylindrical stove with sheet-iron body, cast-iron top and base, with door in front and top removable—26 inches high, $4 15, 32 inches high, $5, 40 inches high, $6 40 United States currency The square enameled stove of the same make sells for about $8 30 The cylindrical type sells in the ratio of 3 to 1 as compared with the square type German prices for this same type of stove are approximately the same as the Belgian, although prices among various manufacturers in those countries vary a little Only one make of American heating stove has met with a fair sale in central Chile, and its price is a little above that of the German and Belgium product

GAS HEATING STOVES

Manufactured gas is obtainable in eight cities of Chile, namely, Santiago, Valparaiso, Iquique, Coquimbo, Copiapo, Talca, Concepcion, and Talcahuano In these towns gas heating stoves are used to some extent by foreigners residing there and among upper-class Chileans, but the total number of such stoves in use is not large Relatively few houses in Chile are piped for the use of gas heating stoves

Chilean manufacturers of gas heating stoves have been able to offer little competition to the foreign manufacturer in this line The British "Welsbach Kern," made in its Belgian factory, the "Devis" and the German "Prometheus," and "Junkers" stoves and heaters appear to dominate the market Only one make of American gas heating stove is found on the market at this time

The "Welsbach Kern" offers a fairly wide range of small heaters consuming 400 to 800 liters of gas per hour These heaters are made mostly in brass finish and in shapes suited to small fireplaces, although not infrequently they are used in the center of the room Prices vary widely according to design, finish, and size, but one of the best sellers is a stove in brass finish, 24 inches high, consuming 400 liters of gas an hour, and selling to the importer at the equivalent of $6 80, f o b factory in Belgium This British concern also offers a heater of radiator type with water circulation, but its cost is somewhat higher than a similar type of heater of American manufacture which meets with a readier sale

The "Devis" gas heater is the principal competitor with the "Welsbach Kern" and appears to be selling very well in the Chilean market The "Junkers" heaters have a smaller range in design and appeal to that part of the public influenced mainly by price The only American gas heater selling in any volume is of the radiator type with water circulation This heater is made of very light sheet iron and silvered, and sells at a price that overcomes European competition This stove operates satisfactorily and appears to be preferred to all other brands of this type of gas heater The general opinion in the Chilean market seems to be that American gas heating stoves are more complicated than the European, are better in appearance, and considerably higher in price It is believed that the American gas heater could be sold more extensively if prices could be scaled down to near those of European makes already on the market, as the preference for the European stoves is largely due to the fact that they have become well established and generally known in the market

KEROSENE AND GASOLINE HEATERS

The American cylindrical sheet-metal kerosene heater was the first one introduced into Chile, but in recent years a German heater of similar type has entered the market, the latter sells at $5 to $10, or about two-thirds the price of the American The Germans also market a white enameled heater with exceptionally efficient heat diffusion, this heater sells at $10 to $15 and has been very favorably received Unless American kerosene heaters can meet the price competition offered by the Germans, there is little probability that the sale of these in Chile will show any gains or even hold their own Kerosene heaters are used to a considerable extent in Chile during the winter months

No gasoline heaters have been sold in Chile, so far as has been ascertained

COOKSTOVES

The cooking appliances in general use are rather scanty, and in many instances primitive Among the poorer people the open fire or brazier are still very commonly used; and where oven cooking is desired, the outdoor beehive mud oven is extensively used in suburban and rural districts Only among the middle and upper classes is there any considerable demand for cookstoves and ranges of any kind

Coal, coke, and wood burning cookstoves and ranges are the ones most widely used in Chile, as in many sections of the country manufactured gas is not available Even in the towns where gas is available many households use coal or wood burning cookstoves, as these are considered less expensive to operate than the gas cookstoves, and since a servant does the cooking and such service is cheap, the question of ease and comfort of operation is not a factor

The 3-plate or 4-plate range, with oven, and with a container at the top for heating water is the most popular type Both black and enameled cookstoves are sold There seems to be a preference for the enameled ones in the cities, while the black iron is more popular in the rural districts A large proportion of the demand for wood and coal burning ranges and stoves in Chile is supplied by domestic production, but the imported product is looked upon very favorably and where prices are anywhere nearly equal will dominate the market, as it is considered that they give better service German and Belgian cookstoves lead all other imported stoves in the Chilean market and smaller quantities come from the United States and France

The German cookstove retails, according to size, at $36 to $42 United States currency for the 3-plate type, standard height, and at $54 to $66 for the 4-plate type Belgian quotations are about the same, but American and French stoves of similar type are from 15 to 25 per cent higher in price It is claimed that the average retail price includes a gross profit of about 25 per cent American cookstoves, especially in odd sizes, have a limited demand in the Chilean market, due to popularity gained during the World War These American stoves have been able to hold some of the ground gained then despite their higher prices The Germans and Belgians supply practically the entire demand for the large ranges of six and eight plates used in hotels and clubs Prices for these are said to be about 20 per cent under those of the American manufacturer for the same product The Chilean market considers European stoves equal to the American product in quality and durability, so that price is the controlling factor in sales of imported cookstoves

Although gas stoves of the table and range type are manufactured in Chile, the greatest demand is for the imported product, as the imported stove combines good appearance with greater efficiency of operation, and its price is not enough above that of the less efficient domestic article to constitute a preference in the eyes of the majority of the prospective purchasers The table type of gas stove is not greatly in demand and in this style of gas stove the French manufacturer competes strongly with the Germans, as both the French and the Belgians are able to undersell their German competitors Neither American nor British manufacturers participate to any appreciable extent in the Chilean market for the table type of gas cookstove

Gas ranges have an extensive sale in Valparaiso, Santiago, Concepcion, and Iquique, but have a much smaller sale in the other towns where manufactured gas is sold In Santiago there are some 35,000 consumers of gas, with an average of 400 new installations each month In Valparaiso there are 10,000 consumers, and in the towns of Iquique, Concepcion, and Coquimbo only about 2,000 in each, while in Copiapo and Talcahuano there are many less In these smaller towns, the coal or wood burning range is still used to a much greater extent than in the large cities It is the custom for the gas companies in

Chile to sell gas-burning equipment, and they endeavor to fix prices at a level that will still leave a profit for dealers, but the complaint among the latter is that the gas companies sell equipment at cost or very little above

For domestic use the type preferred by the Chilean market is the 3, 4, or 6 burner gas stove, the latter two sizes are equipped with double ovens, or a single oven with warmer The all-enameled range with nickeled lead pipes and with top finished in black or gray is preferred The black-finished range also has a ready sale because of its lower price The partly enameled gas range, with the front enameled and sides in black or gray, has not met with any great demand

It is estimated that the Germans supply about 50 per cent of the demand in Chile for imported gas ranges, the United States supplies about 25 per cent, and Belgium a fair percentage, while France and the United Kingdom supply an unimportant proportion of the market's demands American gas ranges are generally more expensive than the European product, and this factor has tended to keep them from obtaining a larger share of the Chilean market

The German "Junker" is the most popular range in the Santiago market The 3-plate, single-oven, all-enamel range of this make, with brass trimmings, is quoted to dealers at about $32, and the 4-plate, 2-oven range of the same make at about $43 Both prices are f o b factory, less a discount of 30 per cent.

KEROSENE AND GASOLINE COOKSTOVES

In the cities of Santiago and Valparaiso and in the towns of southern Chile there is only a small demand for kerosene cookstoves and practically no demand for gasoline cookstoves In Antofagasta and Iquique there is a fair demand, though the market in those towns is not large, and a good proportion of the stoves imported is sold to persons residing at the nitrate properties in the interior

American kerosene cookstoves supply practically the entire demand for this equipment in Chile Very few gasoline cookstoves have been sold in this market, and these have been chiefly of American manufacture

WATER HEATERS

The only demand for domestic water heaters in Chile is among the middle and upper classes, and the total number of such heaters in use is not large In towns where gas is not available, and to a limited extent where it is, there is a small demand for water heaters using wood, coal, and coke While a few heaters in the larger sizes of this type are brought in from the United States, Germany, and the United Kingdom probably 90 per cent are of Chilean manufacture The water heater manufactured in Chile is made of light sheet iron It is usually painted and has a small fuel compartment at the bottom In some of these an attempt has been made to regulate the temperature of the water by a safety valve, but most of them require watching to avoid excessive steam pressure The imported heater with automatic safety control is appreciated, but its cost is so much greater than the domestic make that it is beyond the means of the majority of the people In the larger sized and more expensive types intended for clubs and hotels the imported wood and coal burning heater is purchased, as the price here is not such an important factor and the Chilean product in the large size is not efficient It does not seem probable that the sale of imported wood and coal burning water heaters will show any substantial gains in the Chilean market, as many of the former purchasers of such equipment are now installing central heating plants which also supply hot water during the months that is it most needed

In those cities where gas is to be had the use of water heaters is general among the upper and middle classes as but few of the wood or coal cookstoves and none of the gas ranges are arranged to supply hot water for the bath The kitchen type of water heater in conjunction with the kitchen range is used to a very limited extent, but almost all bathrooms are equipped with gas or, in a few instances, electric water heaters

A gas-fired water heater of Chilean manufacture has supplied about 50 per cent of all heaters used in that country This product is a thin copper heater with copper coils and is without safety control, but it is low priced and meets the requirements of that large portion of the purchasing public to whom first cost is the controlling factor An active competitor to these is the German "Junker" heater in small sizes, with or without shower attachment, installed directly over the tub, and quoted at about $9 30 for the small type and $12 80 for larger ones, f o b factory These "Junker" heaters are sold at retail for about $20 for small sizes and up to $30 for the larger kind in Santiago The automatic "Junker" gas water heater connected with the bath, shower, bidet, and lavatory retails in Chile at $84 to $120, the f o b prices of these range from $30 to $59

A few American automatic gas water heaters have been sold in Chile, but there has been some complaint concerning these, it being said that the type of burner with which they are equipped causes the vapor to precipitate and fall on the burner, making it corrode and resulting in decreased efficiency, as well as necessitating frequent replacement of the burner The German burners are the direct type, and since they do not cause precipitation of vapor do not require as much repairing or attention as the American heater However, it would appear that the higher price of the American machine is really the principal obstacle that has to be overcome and that the other objections are only minor factors in hindering sales

Next in importance to the German water heater is the French "Bray", which is square, finished in copper The burner is hinged so that it is lighted before being placed under the coils, but it is said that the hinge arrangement frequently allows gas to escape The price of this make of heater is almost the same as that of the German ones of the same size

A few Italian gas-fired water heaters are also sold in the Chilean market, but they have not met with widespread popularity These are of the automatic type and in price they compare favorably with the German product

ELECTRIC COOKING AND HEATING DEVICES

In the section of Chile around Santiago and Valparaiso there has been considerable electrical development, and this area offers the best market for electric cooking and heating devices There is a fair demand for small electric heaters to be used during the winter months for the heating of rooms and offices, and some demand for electric water heaters The greatest demand, however, is for hot plates, irons, and similar equipment The use of electric cooking ranges and stoves is increasing in Chile, as evidenced by the fact that the value of these goods exported from the United States to Chile increased from $3,944 in 1928 to $16,542 in 1929. The value of other American electric domestic cooking and heating devices sold in the Chilean market increased from $9,494 in 1928 to $26,085 in 1929 The United States holds a leading place in supplying such equipment to Chile

CENTRAL HEATING PLANTS

Central heating is not widely used in Chile and it is only during recent years that such equipment has been installed in modern office buildings, in hotels, and in the residences of the wealthy The demand for such equipment is satisfied entirely by imports, coming chiefly from the United States, Germany, and the United Kingdom, and while the sales of central heating equipment in Chile are not large, the market should show gains, as there is a growing appreciation of the advantages and comforts of central heating The steam plant is the most popular type of heating system in Chile for hotels and office buildings, while hot water is preferred for homes, though occasionally in homes hot-air systems are installed

Most of the water boilers on the Chilean market are of domestic manufacture A few American and British boilers are sold but the total number is small owing to the fact that it is not the custom to have boilers connected with the kitchen range or to maintain any reserve supply of hot water, reliance being placed rather on instantaneous heaters

FURNACE HEAT REGULATORS

The number of furnaces in use in Chile is not large, and only a small proportion of these have heat regulators It is only on central heating systems employing fuel-oil burners that heat regulators are considered to be standard equipment, and practically no coal or wood burning systems employ them

STEAM FITTINGS

Malleable-iron steam fittings have almost entirely displaced wrought-iron fittings A few houses in Iquique still carry the latter The British thread is standard throughout Chile and there is little possibility of selling any other type of fitting The entire demand for steam fittings is supplied by imports, since none are made locally The United States supplies upward of 70 per cent, and Germany furnishes a greater part of the remainder German competition has been very keen during recent years, but the American manufacturers that are already in the market seem to be holding their own

CHANNELS OF DISTRIBUTION AND TERMS OF SALE

Since the Chilean market for cooking and heating appliances is not large it is believed that any good representative would demand that he be allotted the whole country An agent in Santiago or Valparaiso is in a position to cover the territory adequately Possibly for oil stoves an exclusive agent in Antofagasta would be best, as the northern section offers the largest market for such stoves

Manufacturers sell heating and cooking appliances (*a*) to large importing houses which undertake their distribution to the smaller concerns, (*b*) directly through large dealers, or (*c*) in a few instances through manufacturers' representatives working on a commission basis The large gas companies sometimes buy direct from the manufacturer, although they are not usually granted the exclusive distribution of the manufacturer's products

The wholesale distributor is in a position to secure the widest distribution of these products, but there are only a few such houses willing to handle these lines and they have long-established connections Manufacturers desiring to enter the Chilean market have usually found it necessary to go direct to the large retailers The manufacturer's representative canvassing the trade and receiving a fixed commission on all sales has not been resorted to as much in the distribution of cooking and heating appliances as in other lines, although a few suppliers use this method of distribution Few representatives have found such lines remunerative enough to justify handling them on a commission basis

The large American mining companies operating in Chile buy a fair amount of heating equipment, but their purchases are all made through their offices in the United States All other conditions being equal, these companies give preference to United States products when purchasing equipment and supplies for their mines

The usual terms of sale for cooking and heating equipment in Chile are 60 or 90 days after acceptance of draft and arrival of goods While some manufacturers include in their price interest for this period, others prefer to add this at the rate of 6 per cent

Several of the large importers in Santiago have complained that the charges assessed by the American manufacturer above f o b factory price are much higher than those made by the Germans When f o b factory prices are quoted, the Chilean dealer expects to pay consular charges, also inland and ocean freight and insurance, but it has been the practice of some American manufacturers to add cartage, telephone calls, lighterage, dispatch agent's commissions, and other charges One dealer, to prove the truth of his complaint, showed that where the same f o b factory price was quoted in the United States and Germany, when the stoves arrived in Chile the American product proved to be 11 per cent dearer than the German entirely because of these extra handling charges To avoid misunderstandings it should be clearly stated what charges are to be added to f o b factory prices When possible German manufacturers resort to the use of sailing vessels for shipping heavy units, thus greatly reducing freight costs

COLOMBIA

Aldene A Barrington, Clerk to Commercial Attaché

The climate of Colombia is tropical in the lowlands, and mildly temperate in the highlands, and homes in general are not equipped with any means of artificial heating In Bogota, where at times the days are chilly, some foreigners use small electric heaters for taking the chill off the air in sitting rooms and offices, but the average Colombian who lives in the highlands feels that any artificial heat is unhealthful and that heaters of any kind burn up too much oxygen from the atmosphere which is already lacking in that element Colombia may be considered largely as a negative market so far as general house-heating equipment is concerned

The following table shows exports of cooking and heating appliances from the United States to Colombia from 1924 to 1929

UNITED STATES EXPORTS OF COOKING AND HEATING APPLIANCES TO COLOMBIA

Article	1924	1925	1926	1927	1928	1929
Coal and wood burning cookstoves and ranges	$5,170	$11,600	$12,817	$17,767	$16,561	$11,127
Heating stoves and warm air furnaces	337	562	1,248	1,683	150	172
Gas stoves, ranges, and water heaters	1,624	591	3,722	6,001	4,233	6,246
Oil and gasoline stoves	3,973	9,371	11,511	19,057	----	----
Kerosene cookstoves and ranges	----	----	----	----	8,770	11,047
Gasoline cookstoves and ranges	----	----	----	----	7,294	4,063
Parts of stoves and ranges	5,150	4,016	2,825	6,867	11,600	2,918
House heating boilers and radiators	5,818	5,116	5,949	3,952	682	----
Domestic electric cooking and heating devices	7,526	15,923	21,389	24,426	----	----
Electric cookstoves and ranges	----	----	----	----	37,133	33,843
Other domestic electric cooking and heating devices	----	----	----	----	30,524	18,295
Total	29,598	47,179	59,461	79,753	116,947	87,711

The type of cookstove used in Colombia among the more prosperous classes is the built-in brick kitchen range with cast-iron top and front plates and a handmade copper tank for heating water On the whole, these ranges are fairly satisfactory, although they are said to require more fuel than the iron range These built-in stoves cost in Bogota from $120 to $130, including the hot-water tank Imported iron ranges in Bogota sell at $55 for the 2-hole kind, and at $150 to $170 for the 6-hole type These prices do not include the hot-water tanks, which cost about $35 High inland transportation charges make imported cast-iron stoves very expensive in the interior, hence the chief market for these is found along the coast The poorer people throughout Colombia use charcoal braziers and open-hearth fires for cooking their food, and it is only among the more prosperous classes that there is any demand for cookstoves and ranges As the prosperous Colombian family has several servants, the mistress of the house rarely goes into the kitchen and she takes little interest in seeing that the cook has modern appliances Since the cook is loath to try anything new, it is doubly difficult to create a demand for modern cooking appliances

The fuels most commonly used for cooking in Colombia are wood, coal, and charcoal, the latter being used chiefly by the poorer classes Coal sells at $10 to $20 a ton, depending on what transportation charges it has to bear, and charcoal at about $25 a ton in Bogota

Very few kerosene and gasoline cookstoves have been sold in the Bogota district, it being estimated that not more than 80 are in use there at the present time The high cost of kerosene and gasoline at Bogota—60 to 70 cents a gallon—makes this type of stove expensive to operate The native servants do not know how to handle them and will not keep them clean, so that in most instances those that have been installed have not given satisfaction The most popular type of oil stove with wicks retail in Bogota at $24 75 to $45, depending upon the number of wicks A popular type is a wickless stove of enamel finish, burning either gasoline or kerosene and retailing at $90 to $300 American stoves practically dominate the market Only one European make, a small 1-wick stove, is encountered Along the coast, where kerosene and gasoline are a littler cheaper and the climate is warm, kerosene and gasoline cookstoves are used to a greater extent than in the highlands, but as the number of people residing in the coastal section of Colombia is not great that market is not large Germany, the chief competitor in the Colombia market for cooking and heating appliances, supplies about 10 per cent of all such imports while the United States furnishes possibly more than 80 per cent Probably most of the parts of stoves and ranges imported into Colombia are used for making the brick built-in stoves, as there are no stove factories or assembling plants in the country

The use of electric cooking and heating appliances has shown considerable increase in Colombia during recent years, as evidenced by the substantial gains in exports of such appliances from the United States to that country

CREDIT TERMS

The usual credit terms requested by the Colombian importer of cooking and heating appliances are from 60 to 180 days after date or sight, if it is obtainable, and he expects quotations of c i f some Colombian port

Because of the lack of adequate transportation facilities throughout Colombia it is impossible for one agent to cover the whole country, and unless an agent has branch houses in several towns the most practical way is to appoint an agent in each of the following Colombian cities Cartagena, Barranquilla, and Santa Marta, along the coast, and Medellin, Bogota, and Cali, in the plateau region Most agents in Colombia expect assistance in the way of an advertising allowance

ECUADOR

Prepared in the Iron and Steel Division

The climate of Ecuador is decidedly tropical along the coast, and even in the highlands around Quito it is never sufficiently cool to justify the heating of homes—a condition which eliminates this country as a market for heating devices Quite a large percentage of the population consists of Indians, who use charcoal braziers or open fires for cooking The demand for cooking appliances is thus limited to a few families of the upper class Any Ecuadorian that might be in the market for a cookstove or range would have several servants, these would be accustomed to cooking with charcoal and would probably object to using a range This opposition of servants to anything new is an important factor in retarding the adoption of modern cooking equipment in Ecuador by the more prosperous classes Furthermore, a range or cookstove has disadvantages in a tropical climate due to the amount of heat it radiates Cooking over a charcoal brazier in the Tropics is far more comfortable than standing over an iron stove

There is a small gas plant operating in Guayaquil, but this is frequently closed down The lack of a reliable supply of gas has limited its use as a fuel for cooking and has stimulated the purchase of electric cooking and heating appliances Outside Guayaquil there are no gas plants in Ecuador

During 1929 exports of cooking and heating appliances were valued at about $13,000, of which electric cooking and heating appliances accounted for some $10,000. If electric energy is priced at a reasonably low rate, cooking with electricity is the ideal method in the Tropics, because of the small amount of heat radiation in the kitchen from such equipment. In Ecuador charcoal and wood are comparatively cheap, and it is difficult for other fuels to compete with them.

Guayaquil is the commercial center of the country as well as the port of entry for Quito and the highlands, and an agent located in the former city can easily cover the entire market. The city of Quito is the capital, but it is of relatively little commercial importance.

PARAGUAY

Prepared in the Iron and Steel Division

There is no market in Paraguay for house-heating equipment as the climate is quite mild, and sales of modern cooking appliances are very small. Paraguay buys largely through Argentina, and it is probable that some of the cooking and heating appliances that the United States sells to Argentina eventually find their way to the Paraguayan market. Paraguay is chiefly an agricultural country, and the number of people who might be in the market for imported cooking and heating appliances is very small.

PERU

O. C. Townsend, Commercial Attaché, Lima

The Peruvian market for cooking and heating appliances is not large. Total exports of such equipment from the United States to Peru during 1929 were valued at $37,885—a greater value for such exports than for any previous year. There is little market in Peru for house-heating devices as the climate along the coast is mild and only the few foreigners residing there use small oil heaters during the evening in the winter months. In the mining camps of the American-owned mines in the highlands open fireplaces (burning coal) and electric heaters are used in those buildings occupied by the American employees.

The largest item of heating and cooking appliances sold in the Peruvian market by the United States consists of oil and gasoline stoves, which during 1929 accounted for more than 50 per cent of such sales. The following table shows exports of heating and cooking appliances from the United States to Peru from 1924 to 1929.

UNITED STATES EXPORTS OF COOKING AND HEATING APPLIANCES TO PERU

Item	1924	1925	1926	1927	1928	1929
Coal and wood burning cookstoves and ranges	$4,112	$6,646	$2,688	$2,022	$1,381	$986
Heating stoves and warm air furnaces	321	237	1,360		105	376
Gas stoves, ranges, and water heaters	4,402	2,824	5,990	4,382	2,099	2,011
Oil and gasoline stoves	6,524	5,099	10,136	19,947		
Kerosene cookstoves and ranges					14,471	17,787
Gasoline cookstoves and ranges					6,209	3,630
Parts of stoves and ranges	1,471	909	8,807	3,037	4,318	7,224
Domestic electric cooking and heating devices	5,504	2,668	3,998	7,375		
Electric cookstoves and ranges					1,668	1,519
Other domestic electric cooking and heating devices					3,527	4,352
Total	22,334	18,383	32,970	36,763	33,778	37,885

The usual cookstove or range used in Peru is built in It is made of tile, cast iron, and brick and burns coal or coke The coke comes from northern Peru and retails for about $2 a sack of 100 pounds The native cooks much prefer this type of stove, on which they cook very well, and it is difficult to get them to use the modern all-iron stove or range The poorer families cook on braziers or over open fires All fuel in the settled regions of Peru is expensive, so that the poor people have to economize it in every way possible

As the only company producing manufactured gas in Peru closed its plant a few years ago, there is no demand now for gas stoves and gas water heaters except for a few listed in exports from the United States each year which are evidently used in connection with private gas supplies, or are gasoline stoves that have been listed as gas stoves

One of the oil companies operating in Peru at one time endeavored to introduce oil heaters similar to those used in the United States, but their efforts were not very successful as the climate in the lowlands is so mild that such heaters are not necessary, and they are not efficient at the high altitudes at which the mining camps are located

The use of oil and gasoline cookstoves has gained considerable ground during recent years and this gain should be retained as oil and gasoline are produced in the country at the refinery at Talara and are sold at fairly reasonable prices Oil and gasoline as cooking fuels should not be much more expensive than coke or wood Very little charcoal is used in Lima for cooking as there is no wood available for making it

American sales of kerosene cookstoves and ranges in the Peruvian market during 1929 were valued at $17,787 as compared with $14,471 during the preceding year, and sales of gasoline cookstoves and ranges in the same market were valued at $3,630 as compared with $6,209 during 1928 From 30 to 40 per cent of these oil and gasoline stoves are imported for use in the camps of the oil companies operating in the northern part of Peru, but are purchased by the purchasing departments of these companies located in the United States and therefore should not properly be taken into account when judging the size of the market as measured by the sales a local representative may be able to make The same reasoning applies also to articles purchased by the American mining companies operating in the highlands of Peru, which purchase all supplies through their New York offices

Most of the water heaters used in Peru are of domestic manufacture and are alcohol burners, as this fuel is efficient and cheap, coming from the large sugar mills of that country These heaters retail at about $16 each Very few tanks for heating bath water are connected with the kitchen range as this method has not proved satisfactory in supplying hot water because the fire in the kitchen is allowed to go out between meals Also the usual custom is to have only coffee for the morning meal and as this is made over an alcohol burner the kitchen fire is not lighted until the midday meal

Electric heating and cooking devices have not found the ready market that they should in Peru, where all fuel is expensive, largely because the rate for electric energy is also very high American sales of such appliances are not important and have not shown any great increase during recent years

The usual credit terms granted on the sale of cooking and heating appliances in Peru are from 60 to 90 days from acceptance of draft after arrival of goods An agent located in Lima can cover the entire country fairly well

URUGUAY

C R Herron, Assistant Trade Commissioner, Montevideo

American sales of cooking and heating equipment in Uruguay have shown substantial gains during recent years, having increased from a value of $6,759 in 1924 to $54,062 in 1929 Sales of oil and gasoline cookstoves and ranges and of electric cooking and heating devices account for more than 80 per cent of these sales, as the demand for cookstoves (whether wood, coal or gas burning) in Uruguay is largely supplied by domestic manufacture

The following table shows the value of exports of cooking and heating appliances from the United States to Uruguay from 1924 to 1929

UNITED STATES EXPORTS OF COOKING AND HEATING APPLIANCES TO URUGUAY

Article	1924	1925	1926	1927	1928	1929
Coal and wood burning cook stoves and ranges	--------	--------	$52	--------	$186	$319
Heating stoves and warm-air furnaces	--------	$68	679	--------	17	116
Gas stoves, ranges, and water heaters	$440	375	929	$2, 421	1, 272	1, 483
Oil and gasoline stoves	1, 014	770	6, 200	10, 961	--------	--------
Kerosene cook stoves and ranges	--------	--------	--------	--------	12, 165	35, 469
Gasoline cook stoves and ranges	--------	--------	--------	--------	5, 567	6, 944
Parts of stoves and ranges	130	177	374	461	1, 582	2, 133
House heating boilers and radiators	--------	--------	--------	70	--------	--------
Electric domestic heating and cooking devices	5, 175	11, 017	8, 690	9, 816	--------	--------
Electric cook stoves and ranges	--------	--------	--------	--------	5, 542	532
Other domestic electric cooking and heating devices	--------	--------	--------	--------	10 936	7, 066
Total	6, 759	12, 407	16, 924	23, 729	37, 267	54, 062

In the country districts of Uruguay there is a fair demand for wood-burning cookstoves and ranges which is largely supplied by domestic production, there being 10 stove factories located in Montevideo and 1 or more in other cities of the Republic Imports of wood and coal burning cookstoves and ranges into Uruguay amount to about 100 tons a year and come chiefly from Europe The United States supplies an insignificant part of these imports Since wood and coal are both expensive there is a marked indication that kerosene cooking equipment will supplant stoves using those fuels Uruguay has no natural forests except close to the Brazilian border In most parts of the country farmers raise firewood as a crop, hence it is very costly

HEATING STOVES

There is only a limited market for wood and coal burning heating stoves in Uruguay, as in Montevideo and other towns where electricity is available electric heaters are used to a considerable extent As the climate of Uruguay is comparatively mild and heating is necessary for only a few hours during the day the electric heater is the most acceptable method of heating

Very few gas stoves are used for heating purposes as the operating cost of these is considered to be excessive and does not compare favorably with that of the electric heaters Kerosene heaters have been adopted in Uruguay only to a limited extent

DOMESTIC WATER HEATERS

The domestic production of gas-fired water heaters in Uruguay is of considerable importance but is not large enough to satisfy the demand, and a number of makes of imported heaters are found on the market Of the latter the Argentine heaters predominate These can be shipped in carton containers, thus cutting down import duty charges, which are levied on the gross weight, and making it possible to sell the heaters at a price that appeals to the public Water heaters must be installed at the expense of the renters of apartments or houses and these temporary residents naturally do not take much interest in purchasing expensive equipment Practically all the gas water heaters used are of the instantaneous type, as it is not the custom to have a stored supply of hot water

During recent years the electric water heater has met with an increasing demand, and one firm in Montevideo is said to have installed 2,000 in one year These were Swiss heaters, which are comparatively low priced and have become well established in the Uruguayan market

Coal and wood burning heaters are used only by hotels or apartment houses where considerable quantities of hot water are desired Very few kerosene and gasoline water heaters have been sold in Uruguay

CENTRAL HEATING EQUIPMENT

Central heat is gaining in popularity in Montevideo, and many of the newly constructed buildings have heating systems The hot-water type is the one preferred and no warm-air and few steam installations are in use House-heating boilers and radiators are not manufactured in Uruguay, annual imports of radiators are valued at some $50,000 and imports of house-heating boilers at some $15,000 annually. Practically none of these imports are supplied by the United States, but originate in the United Kingdom and other countries of Europe

Steam fittings, heat regulators, and similar equipment sold in Uruguay are practically all of European origin, and are generally supplied by the country in which the heating equipment on which they are to be used is purchased

GAS COOKSTOVES AND RANGES

Manufactured gas is available in the city of Montevideo, which is supplied with gas by a British company selling its products at $2 40 to $2 70 (United States currency) per 1,000 cubic feet The total number of consumers served by this company is about 10,000, and about 90 per cent of all gas cooking and heating equipment is purchased or rented from the gas company Gas stoves of the kind used in the United States find a very small market in Uruguay The 1, 2, and 3 burner table type of gas stove is the most popular Gas plates are manufactured or assembled locally, the materials being imported from the United Kingdom, Germany, and France The gas company in Montevideo, which has practically a monopoly of the market for gas stoves and ranges, imports one make of American gas range, but the demand for these is limited This company is not interested in taking on any other American makes, since they do not care to maintain duplicate sets of repair parts

KEROSENE AND GASOLINE COOKSTOVES AND RANGES

During the past year or two there has been a decided increase in the number of kerosene cookstoves sold. These are stoves that are especially adapted to the conditions in the rural districts of that country, where wood as a fuel is very expensive. The trouble in the past has been to get families living in the country to give these stoves a trial. A large percentage of the rural inhabitants consists of small renters or farm laborers who can buy only small, cheap stoves, and it is only among the owners of large farms that a market is found for kerosene ranges. American sales of gasoline stoves in this market are holding their own, but are not showing any marked increase.

ELECTRIC COOKING AND HEATING DEVICES

The supplying of electric light and power in Uruguay is, in effect, a Government monopoly, as the large company supplying Montevideo and most of the country as well is controlled by the Government. The rate is about 3 cents a kilowatt-hour, and at this price electricity as a means of heat generation can compete with wood, coal, kerosene, and gasoline. The use of small electric heaters for households, restaurants, and theaters is common. A number of electric water heaters are also in use, most of them being of Swiss manufacture. Because of the relatively low rates for electricity in Uruguay that country offers a growing market for electric cooking and heating devices, but it is a highly competitive market. Imports of electric stoves and ranges from the United States declined from a value of $5,542 in 1928 to only $532 in 1929. American sales of other domestic electric cooking and heating equipment also showed a decline during 1929. The current in Montevideo, and in most of the other towns, is alternating, at 220 volts, 50 cycles, one and three phase.

An agent in Montevideo can easily cover the whole country, as its area is not great and means of communication fair.

VENEZUELA

Halbert E. Watkins, Commercial Attaché, Caracas

The climate of Venezuela being tropical, there is no demand for house-heating equipment. The city of Caracas, which lies some 3,000 feet above sea level, is the coolest place in the country, and even the foreigners residing in that city do not consider the heating of homes necessary. Statistics of exports from the United States each year report a few heating stoves and warm-air furnaces exported to Venezuela, but such equipment must be used for industrial purposes or in connection with the drying of cacao and coffee, for no heating equipment is used in Venezuelan homes. American sales of cooking and heating equipment to Venezuela have shown decided gains during recent years, however, as demonstrated by the fact that they increased from $18,743 in 1924 to more than $67,000 during 1929. Gasoline and kerosene cookstoves and electrical heating and cooking devices in 1929 accounted for more than 50 per cent of total American sales of cooking and heating equipment in the Venezuelan market.

The following table shows, by value, the exports of cooking and heating equipment from the United States to Venezuela from 1924 to 1929.

UNITED STATES EXPORTS OF COOKING AND HEATING APPLIANCES TO VENEZUELA

Article	1924	1925	1926	1927	1928	1929
Coal and wood burning cook stoves and ranges	$6,175	$8,145	$14,149	$9,188	$13,096	$8,337
Heating stoves and warm-air furnaces	666	2,223	2,070	105	1,018	1,157
Gas stoves, ranges, and hot water heaters	2,073	2,915	9,991	13,063	7,425	10,934
Oil and gasoline stoves	2,514	18,466	21,264	29,766	----	----
Kerosene cookstoves and ranges	----	----	----	----	6,132	17,851
Gasoline cookstoves and ranges	----	----	----	----	10,595	3,321
Parts of stoves and ranges	2,152	4,353	6,405	10,428	7,768	7,578
Domestic electric cooking and heating devices	5,163	4,693	10,744	16,124	----	----
Electric cookstoves and ranges	----	----	----	----	3,845	5,585
Other domestic electric cooking and heating devices	----	----	----	----	10,987	12,689
Total	18,743	40,795	64,623	78,674	60,866	67,452

While charcoal is the most widely used fuel for cooking in Venezuela, even in the towns and cities there is a limited and fairly steady demand for American coal and wood burning stoves which amounts to $9,000 to $10,000 a year, as shown by United States export statistics covering the last six years.

No manufactured gas is obtainable in any of the towns in Venezuela and all gas stoves and water heaters sold in that market are for the oil companies in the Maracaibo district, which have developed the natural gas resources in that territory for the use of their employees. These oil companies are controlled by American or European capital and purchase all their supplies and equipment through offices located in the United States or Europe.

Charcoal has become during recent years increasingly expensive in Caracas and other Venezuelan towns, with the result that even the poorer people have turned to kerosene and gasoline stoves for cooking. The most popular kerosene cookstove is the 1-burner kind, and the Swedish pressure-feed makes about supply the entire demand for these. These Swedish 1-burner stoves sell for about $4 each and come packed in a light carton. American stoves of a similar kind are retailed at about $7 and because of the difference in price have not met with very ready sale. For the larger type of kerosene and gasoline cookstove or range with several burners and an oven the American product is the most popular. A good many oil stoves are used in Caracas, but probably a majority of those imported from the United States are for the oil fields in the Maracaibo Basin, where 3,000 or 4,000 American and European employees of oil companies reside and where, in most cases, the companies give these employees a furnished house. American sales of kerosene cookstoves in the Venezuelan market during 1929 were valued at $17,851, and sales of gasoline cookstoves were valued at $3,321 for the same year, having showed a decided decrease as compared with the preceding year. It is believed that practically all the gas stoves, ranges, and water heaters, and a large percentage of the oil and gasoline stoves imported into Venezuela from the United States are for the account of the oil companies located in the Maracaibo Basin, are purchased by the New York offices of these companies, and should not be taken into account when calculating the possible sales an agent in this territory might be able to make.

Sales of American-made electric cooking and heating devices in the Venezuelan market have shown gains during recent years, these during 1929 having been valued at some $18,000, with electric cookstoves and ranges accounting for about $5,500 of this amount. The

Americans and Europeans residing in the Maracaibo Basin are probably among the leading purchasers of electrical cooking equipment in Venezuela, but the use of these appliances is not uncommon in Caracas and other towns where electricity is available. The development of the Venezuelan oil fields has greatly increased the demand in that country for imported goods and the money put in circulation by the companies operating these fields has had a favorable effect on the entire economic structure of the country.

In appointing agents it would be well to have a representative in Caracas and one in Maracaibo, or one that maintained active houses in each of these cities. An agent in Caracas can cover practically all the country except the Maracaibo section, which is somewhat cut off from the rest of the country and easily represents a separate sales territory. The Cucuta section of Colombia also does a good deal of its importing and purchasing through the port of Maracaibo and an agent there would also have that section to draw on. The usual credit terms granted Venezuelan importers of cooking and heating appliances are 90 days' sight.

U. S. DEPARTMENT OF COMMERCE

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BUREAU OF FOREIGN AND DOMESTIC COMMERCE

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AIRPORTS IN CANADA AND NEWFOUNDLAND

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FOREWORD

Varying weather conditions and development on a commercial basis have imposed unusual and difficult requirements on Canadian airport builders These have been met in an admirable fashion and are being dealt with in a way that augurs well for the future aeronautic developments in Canada

That Canada has some 7,000 miles of air lines in regular operation, that it is a leading country in industrial and miscellaneous flying and that it has 22 flying clubs in operation side by side with about 100 commercial operating organizations, is proof of the widespread use of the new mode of transportation in a country characterized by great distances and a record of progress

This report was prepared in the Aeronautics Trade Division from published and other material supplied by representatives of the United States Departments of Commerce and State in Canada Mr J A Wilson, Controller of Civil Aviation, and other officials of the Canadian Department of National Defence kindly gave much assistance and material to Assistant Trade Commissioner A H Thiemann, who aided in preparing the material The information is believed to be accurate, but aeronautic developments in Canada are making such progress that undoubtedly many airports now are better equipped than the descriptions here indicate It is the intention of the department to revise this report from time to time, as changes justify

SEPTEMBER, 1930

CLARENCE M YOUNG,
Assistant Secretary of Commerce for Aeronautics

AIRPORTS IN CANADA AND NEWFOUNDLAND

By Laurence E Ring, Aeronautics Trade Division

INTRODUCTION

Canada is a leading nation in the development of aeronautics. Progress since 1920 has been slow but constant and firmly based Regular services are maintained over nearly 7,000 miles of airways, some of which are lighted Irregular flights are made in the services of numerous industries Vast areas have been explored and surveyed from the air Air patrols over large forest tracts save a considerable amount of timber from destruction by fire, as compared with losses prior to the provision of this form of protection

There are 22 flying clubs in Canada, each operating two or more planes from its own or from some near-by airport A great variety of work is done by planes belonging to these clubs or to their members This, taken with the regular service, the industrial and the public-work operations, places Canada in the front rank in the wide and extensive use of aircraft On March 31, 1930, civil certificates were effective in Canada for 370 private air pilots, 370 commercial air pilots, 311 air engineers, 407 aircraft, and 71 airports

Not all the airports and seaplane stations have been licensed About 125 are described in the following pages, but numerous others, for which descriptions are not available, have been used extensively or are in periodical or occasional use The many lakes and streams offer havens for seaplanes or amphibians during part of the year, many of them are utilized by ski-equipped planes under appropriate weather conditions Caches of fuel and oil have been provided in still other places where planes on some one of the several types of private or public missions may need new supplies

Excerpts from "Canadian Air Regulations" and part of the "Reciprocal Agreement Between Canada and the United States Concerning the Entry and Clearance of Aircraft" are, for convenience, printed at the end of this bulletin

Following that section is a list of Canadian officials who are responsible for aeronautics in the Dominion Special questions regarding the use of Canadian ground facilities might be addressed to the appropriate officials

WEATHER CONDITIONS[1]

A wide variety of weather conditions and a variable climate are found in Canada's large area of 3,648,723 square miles (nearly 4 per cent of which is water) Much of eastern and central Canada lies at sea level and up to 2,000 feet The western prairie country has an elevation of 2,000 to 5,000 feet and more The mountainous region in the far west reaches, in places, to over 13,000 feet Heavy vegetation is found across northern Canada and nearly everywhere about the numerous and widespread bodies of water which during much of the year serve as natural landing places During varying periods these landing places require the use of skis, and while they are freezing and thawing flying operations must cease Much flying is done in extremely cold weather

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[1] A few suggestions only are given here A detailed study of weather conditions in a limited area is suggested as being well worth while to manufacturers of aeronautic equipment for use there or to flyers intending to fly there As an aid in this direction, a brief list of Canadian official publications is included at the end of this bulletin

The shortest day, which occurs in December, has 9½ hours of daylight on the Ontario Peninsula, 7 hours at Prince Rupert, and none at the mouth of the Mackenzie River The longest day, coming in July, has 15, 17, and 24 hours of daylight at those places

British Columbia.

The littoral region of British Columbia is mild and humid The rainfall amounts to over 100 inches at Prince Rupert and on the west coast of Vancouver Island, and from 30 to 60 inches along the channel east of Vancouver Island It is heaviest in winter The climate changes abruptly east of the coast range, where it is dryer and winters are colders and summers warmer The average numbers of cloudy days at Vancouver and Victoria are 88 and 67, respectively, largely in winter, and the average winds are, respectively, southeast at 4 4 miles per hour and southwest at 8 6 miles per hour

Alberta.

The climate of Alberta is highly variable from season to season and from year to year, and wind changes frequently bring important changes in temperature. The normal winter is cold and lasts sometimes from November till March Again, chinook winds dominate the winter, causing frequent warm, bright days This wind, usually from the southwest or west, keeps much of southern Alberta free from snow On the average, the winter (December to March) has mean temperatures distributed south to north shown by these examples Calgary 18°, Edmonton 14°, Dunvegan 6° above zero, and Chipewyan 3° below zero Bright, hot days occur in July and August The average year has 54 completely cloudy days, principally in winter, at Edmonton where the prevailing wind is southwest with a velocity averaging 5.3 miles Thunderstorms occur in summer here as well as in all Provinces east of the Rockies

Saskatchewan.

The mean daily range of temperature in Saskatchewan during the summer months is 25° to 30° At Qu'Appelle the temperature ranges from a mean daily maximum of 45 5° to a mean daily minimum of 24.2° The mean total annual precipitation is from 15 to 18 inches, of which three-fifths occurs from May to August Snowfall varies from 30 to 50 inches, being greater in the northern and eastern parts of the Provinces. The chinook influence extends to Regina

Manitoba.

About two-thirds of Manitoba is less than 1,000 feet above the sea; in the western part elevations reach and, in places exceed, 1,600 feet; the Province on the whole is lower than the Prairie Provinces

Winters last from November through March The snowfall ranges from 40 to 55 inches, and the ground is usually covered with shallow snow from December through March The mean annual temperature at Winnipeg is 35 2°, varying between the averages of −2 7° in January and +66 6° in July An average of 75 days is completely cloudy, distributed more evenly throughout the year than farther west The prevailing south wind has a velocity of 12 9 miles per hour on an average and with little variation

Ontario Province

Large areas in Ontario Province have weather influenced by the Great Lakes and the Hudson Bay, as well as by the elevation which rises to 1,800 feet The cold waves moving eastward from the prairies make the northwestern and northern parts of the Province colder by an average of over 10° Warm air from the south brings pleasant summer temperatures Records at Ottawa show a mean daily maximum temperature of 51 1°, a mean daily minimum of 32 6°, an annual average precipitation of 33.51 inches, distributed almost evenly by months, a practically constant west wind of 7 5 miles, and an average of 4 days a year with fog

Quebec Province

At Montreal and the city of Quebec, where records indicate the weather in the Province of Quebec, the temperature average varies, respectively, from 13 3° and 9 8° in January to 69 6° and 65 6° in July The average annual precipitation is 41 inches for both places, and the annual snowfall is over 100 inches Prevailing south and southwest winds have velocities of 13 to 17 miles per hour At Montreal the average year has 77 completely clouded days as compared with 79 at Quebec Eight or nine days have fog, but fogs occur at some points more frequently, particularly in summer

Maritime Provinces.

The Atlantic Maritime Provinces have a climate subject to influences from the Atlantic and from the interior of the Continent The average precipitation of these Provinces is between 40 and 45 inches, except along the southern coast line of Nova Scotia where it is nearly 10 inches greater The snowfall varies from over 100 inches in northern New Brunswick to little in Nova Scotia At Fredericton, New Brunswick, the prevailing wind is west with an hourly velocity of 7 9 miles Fogs and cloudiness vary greatly according to place.

DEFINITIONS AND IDENTIFICATION MARKINGS

" Public " versus " Private."

Wherever the term " public " is used in the following description of airports, it means that the facilities are available for public use and that an approved charge for service by the operators may be expected Marking colors are optional, but chrome yellow and white are generally used If the ground is not in contrast with the color of the marker used, a contrasting background is often created by the use of cinders asphalt, or some other permanent dark medium

Wherever the term " private " is used, it indicates that the airport facilities have been licensed to meet the special needs of certain operators Facilities and services are not available to the public, except under emergency conditions or by prior special arrangement with the airport operator The color used in marking is optional, though chrome yellow and white are in general use

Airports.

A "public airport" is one constituting a center for air traffic and containing the necessary installations, in regular operation, for the reception of land planes The identification marker consists of a circle, of which the outside diameter is 100 feet and provided with a 4-foot band The color of the circle is either chrome yellow or white This marker is placed in the center of the landing area when the total area is used For a public license, an airport site must provide an effective landing area of a circle whose diameter is at least 1,800 feet, or the equivalent in landing strips This total area is subject to increase with altitude

A "private airport" is one in regular operation, complying with the dimensions and facilities of an airport, constituting an established base, and containing installations necessary for the reception and traffic only of the land planes belonging to the owner The marker, which is placed in the center of the landing area when the total area is used, consists of a circle having an outside diameter of 100 feet with a 4-foot band and, within the circumference, a Greek cross with 40-foot arms The color of the marker is chrome yellow or white

Intermediate—An "intermediate airport" is a designated field for the casual or emergency use of landplanes, without the major service facilities of an airport, and usually located approximately 30 miles from another field and immediately below or in close proximity to a recognized air route The identification marker, placed in the center of the landing area when the total area is used, consists of a circle having a 100-foot outside diameter and a 4-foot band, together with an inserted bar 20 feet long and 4 feet wide The color is chrome yellow or white

Auxiliary—An "auxiliary airport" is an emergency field that may be available for the public only at certain periods of the year It may be used for agricultural purposes, or the restrictions with regard to its use may be due to the private rights of the owner The marker is placed in the center of the landing area when the total area is used, and it is exhibited only when the field is in usable condition The marker is the same as that used for intermediate airports

Runways—A "runway" is that portion of the landing area, not less than 100 feet in width, which is artificially built up with crushed rock, slag, asphalt, cement, or other material, to provide a satisfactory surface under average weather conditions when natural conditions of a landing area are unfit for safe operations Markers are placed at the intersection of runways, with arms set to indicate the direction of the runways The arms are 20 feet long and 4 feet wide and are attached to the circle marker identifying the field

Seaplane Ports

A "public seaplane port" is a water base constituting a center for the air traffic of amphibians and seaplanes, it may also accommodate aircraft equipped with skis in some localities in winter when ice conditions permit It contains the installations necessary for seaplane and amphibian traffic, in regular operation, for the reception of aircraft If possible, the marker is painted on the roof of the hangar The identification marker consists of an equilateral triangle with sides not less than 25 feet long and 4 feet wide The color is chrome yellow or white

A " private seaplane port " is a water base, in regular operation, containing installations necessary for the reception and traffic of amphibians and seaplanes and capable of accommodating aircraft equipped with skis in some localities in winter when ice conditions permit It is available only for aircraft belonging to the owner The marker is painted on the roof of the hanger, if possible, it consists of an equilateral triangle with sides at least 25 feet long and 4 feet wide with a cross in the center which has a band of 4 feet The color is chrome yellow or white

Seaplane Anchorage.

A " public seaplane anchorage " is a designated lake or body of water for the casual or emergency use of amphibians and seaplanes; in some localities in winter, when ice conditions permit, it is also used by aircraft equipped with skis It is usually located immediately below or in close proximity to a recognized air route Though without the major service facilities of a seaplane port, it provides fueling and mooring accommodations The marker is often constructed to float as an anchored buoy at the point of mooring The latitude and longitude of the anchorage position, in degrees and minutes, are cut into the wood on the base of the triangle The marker may also be painted on a floating dock The marker consists of an equilateral triangle, with sides 15 feet long and a band of 2½ feet A bar 2½ feet wide is in the center The color is chrome yellow or white

A " private seaplane anchorage " is a designated lake or body of water for the casual or emergency use of flying boats, amphibians, and seaplanes, in some localities, when winter conditions of ice permit, it is also suitable for use by aircraft equipped with skis It lacks the major service facilities of a seaplane port but provides fueling and mooring accommodations, and is available only for aircraft belonging to the owner The marker consists of an equilateral triangle with 15-foot sides, each of which is 2½ feet wide In the center is a cross, the width of the stroke being 2½ feet The color is chrome yellow or white The marker. which is often moored as a floating buoy at the point of mooring or painted on a floating dock, should contain the latitude and longitude cut into the wood at the base of the triangle

LIGHTING AND COMMUNICATION

Lighting

In western Canada a system of air-line beacon lights and field flood lights, for night navigation and landing, was placed in operation early in 1930 at mail stops and emergency landing fields along the Winnipeg-Calgary air-mail route, following the main line of the Canadian Pacific Railway Beacons have been placed every 10 miles along the route, and rotating beacons visible for 90 miles in clear weather are established (going westward along the Canadian Pacific line) at Winnipeg and Brandon (in Manitoba), at Regina and

Moosejaw (in Saskatchewan), and at Medicine Hat and Calgary (in Alberta), as well as at Edmonton (in Alberta, 175 air-line miles north and slightly east of Calgary)

The following emergency fields have gas lighting equipment Wolseley and Burrows (in Saskatchewan, east of Regina, along Canadian Pacific Railway) Other emergency fields have electric lighting systems, as follows (going eastward from Regina) : In Saskatchewan (on or near Canadian Pacific Railway), at Broadview and Carlmount, in Manitoba (along Canadian National Railway), at Arrow River, Rivers, Petrel, and Macgregor

Intermediate fields east of Calgary are located as follows In Alberta (along Canadian Pacific), at Namaka, Bassano, Brooks, and Alderson, in Saskatchewan (between western border and Moosejaw, along Canadian Pacific main line), at Cummings, Piapot, Webb, Swift Current, Herbert, Valjean, and Mortlach

At Winnipeg a new beacon and directional light has been installed in the roof of the Hudson Bay Co 's store The beacon is slightly over 200 feet from the ground, the directional beacon, of red neon light, is of 2,000,000 candlepower and points fixedly toward the landing field on the edge of the city Plans are under way by the Hudson Bay Co. for placing similar beacons on their stores at Edmonton, Calgary, and other western cities

At Stevenson Field, Winnipeg, two flood lights have been erected, each about 8 feet high, with 4-foot diameter and a circular body tapering to a small tower in which is placed a ventilating fan. Half of the diameter consists of lenses and prisms that throw the light on the ground at a slight angle from the horizontal Inside is a powerful reflector that projects the light from an incandescent unit of 10,000 watts, equal to 2,500 candlepower

In eastern Canada, at the London (southern Ontario) airport, there has been installed a rotating beacon 52 feet high, with 1,500-watt lamps and a range of 30 to 40 miles in clear weather Smaller beacons are being placed along the mail route connecting Montreal and Quebec with Detroit, Mich

Radio and Other Communication.

In western Canada a " teletype " system of communication has been established between all main centers on the Winnipeg-Calgary route, and radio beacons are located at 150-mile intervals.

In eastern Canada, facilities for reception and transmission of weather reports have also been provided at the London (Ontario) airport, reports being received and sent at 7 a m , 12 noon, and 4 p m daily, or more frequently if desired At the St Hubert airport (east of Montreal), receiving equipment has been installed for obtaining weather reports, broadcast by radios from selected stations in Canada and the United States, for the officials of the Metereological Service, who prepare the daily weather maps at this station

In the summer of 1929, there were 26 radio stations in operation by the Royal Canadian Corps of Signals

In the Northwest Territories, stations are established at Aklavik (extreme northwest Mackenzie Territory), at Fort Resolution (where Slave River empties into Great Slave Lake), at Fort Simpson (junction of Liard and Mackenzie Rivers), and at Fort Smith (where Slave River crosses the Alberta border). In Yukon Territory, stations are established at Dawson City, at Herschel Island (Arctic coast of Yukon), and at Mayo Landing (Stewart River at mouth of Mayo Brook).

In the Province of Alberta, stations are located at High River (about 40 air-line miles south of Calgary) and at Grande Prairie (southern part of Peace River district, in northwest Alberta). In northern Saskatchewan, there are stations at Ile à la Crosse, Lac la Ronge, Ladder Lake (directly west of most western point of Prince Albert National Park, on Canadian National Railway branch), at Prince Albert, at Waskesiu (on lake of same name, northern part of Prince Albert National Park), and at Pelican Narrows (midway of Lake Miron, directly east of Lac la Ronge).

In Manitoba Province, stations are located at Cormorant Lake (near western border of Manitoba, a few miles above 54° North, on Canadian National Railway), at Lac du Bonnet (northeast of Winnipeg, on Canadian Pacific branch), at Norway House (east side of Little Playgreen Lake, north of upper end of Lake Winnipeg, at about 54° North), at Winnipeg, at Winnipegosis (south end of Lake Winnipegosis, terminus of Canadian National branch from Sifton Junction), and at Berens River (northeastern Manitoba, where Berens River empties into east side of Lake Winnipeg).

In Ontario Province, stations are established at Camp Borden (about 20 air-line miles southeast of southeast end of Georgian Bay), and at Ottawa. In Quebec Province, there is a station at St. Hubert airport (east of Montreal and across the St. Lawrence River).

The Royal Canadian Corps of Signals cooperates in the conduct of civil governmental air operations, such as the Forestry Service, by communicating meteorological data and other information.

CHARGES, TOLLS, AND RATES AT GOVERNMENT AIRPORTS

The various items of expenditure involved in the use of Government airports are scheduled in the following two statements. Weights there given are total authorized weights, according to certificate of airworthiness; the rates are believed to be representative of Canadian airports.

Item	Light-weight (up to 3,000 pounds)	Medium-weight (3,000 to 6,000 pounds)	Heavy-weight (over 6,000 pounds)
Landing fee, including storage on ground for 1 day or part thereof	$1.00	$2.00	$3.00
Storage fees, per aircraft per day or fraction thereof (including landing privileges)			
Ground space	1.00	2.00	3.00
Hangar space	2.00	3.00	4.00
Dead storage, per diem (ground space only, limited to 14 days)	.50	1.00	2.00
Hangar storage fees, per aircraft per month (including landing privileges)	30.00	45.00	60.00
Heated hangar space, per aircraft per diem (including landing privileges)	3.00	4.00	5.00
Heated hangar storage fees, per aircraft per month (including landing privileges)	40.00	60.00	75.00
Monthly fees per aircraft, where operator provides his own hangar accommodation	15.00	22.50	30.00

Other general charges are, as follows

Toll for passengers carried for hire, except passengers in transit	$0 10
Light airplanes in use by clubs and club members (monthly charges per aircraft in operation)	15 00
Locker rental fee, per month	25
Mechanician services, per hour (8 a m to 5 p m daily)	1 50
Mechanician helper, per hour (8 a m to 5 p m daily)	1 00
Rental of ground for building purposes, per acre per annum (all plans of proposed building must be submitted for approval to the Department of National Defence)	50 00

The Canadian regulations regarding payment of fees are quoted below

All aircraft must be registered at the office of the airport superintendent

All commercial and other aircraft in transit not attached to the airport or operating therefrom must be registered immediately upon arrival and be checked out upon departure

Landing fees must be paid at the time of registration

Tolls for passengers must be paid at the close of each day by the operators of passenger-carrying aircraft

All fees for planes in transit must be paid in cash

No landing fee or service charges shall be collected for aircraft in the service of the Department of National Defence

No landing fee or service charges shall be collected from visiting aircraft of the United States Army, Navy, Marine Corps, and Department of Commerce

The account of firms privileged to receive credit will be submitted on the first of each month Payment of such accounts rendered must be made by the 21st of the month Failure in settlement, after notification has been given that an account is past due, may result in withdrawal of credit or, if necessary, the removal of aircraft from shelter or from the airport at the contractor's expense

The Department of National Defence does not accept responsibility for theft, damage to aircraft by fire, collision, explosion, or from other cause while the aircraft may remain upon the property of the Department of National Defence

AIRPORTS IN CANADIAN PROVINCES

ALBERTA

Calgary.

The public airport here, owned by the city of Calgary, lies in the northeast section of Calgary at 51° 4′ north latitude and 114° 2′ west longitude, altitude, 3,438 feet above sea level

In addition to the standard identification markings, consisting of a 100-foot circle with 4-foot band, the field is identified locally by the Canadian Pacific Railway, which runs northerly past the eastern extremity of the field, and by the Bow River valley, which is parallel and 500 feet distant from the south boundary A 2-story stone school building is in the southwest corner of the field A power line is on the north side, on the east, a 5-foot fence and the valley of Nose Creek, 100 feet deep, on the south, a 5-foot fence and the valley of Bow River, 120 feet deep, to the west, there is open prairie for 2,400 feet, then the school building and electric-light poles The surround country is generally rolling prairie The field is 2,500 feet square, there are 2 runways, each about 2,400 feet by 300 feet The undulating prairie surface of sandy loam soil has been under cultivation for several years

Housing accomodations include 1 large and 4 small hangars The large hangar, 80 by 100 feet and capable of housing 15 small aircraft, is complete, having cement foundations, heating, electric lighting, plumbing facilities, offices, repair shops, pilots' room, and a classroom Refueling facilities are available

Motor transportation is available to Calgary, where telephone and telegraph facilities and medical assistance may be obtained The nearest railway station is 1½ miles distant

Immediate plans call for the lighting of the field and the construction of three runways—the first extending 3,800 feet in a northwest-southeast direction, the second 2,600 feet north and south, and the third 3,400 feet east and west

Edmonton.

This is a public airport owned by the City of Edmonton It lies north of the northwest end of Portage Avenue, a long stretch of pavement running diagonally across the northern part of the city the exact geographic position is 53° 35′ north and 113° 30′ west, altitude, 2,185 feet above sea level; local magnetic variation, 27° east of north

No obstructions are encountered on the north, east, and south sides, but wires are on the west side The area of the airport is 240 acres; its length from east to west is approximately 4,000 feet Three runways have been constructed—one north and south, and other east and west, and a third diagonally across the field

One hangar, 50 by 100 feet, has been provided. The city let a contract for lighting the airport in June, 1929, as a step toward providing a first-class airport Fresh water is avaiable at the field, but fuel and oil must be obtained at Edmonton

All kinds of transportation, including street cars, are available to the business section of the city, 3 miles distant Telephone and telegraph facilities also are available there, a Government wireless station is 1 mile away from the airport The nearest hospital is 1 mile distant The Dominion Government has placed a full-time weather observer at the airport

Fort McMurray.

A base is maintained here by the Western Canada Airways (Ltd) The town is located in northeastern Alberta, at the junction of Athabaska and Clearwater Rivers, approximately 56° 45′ north and 111° 30′ west

A hangar, 60 by 80 feet, shop, quarters, and other facilities are available

Lacombe

An airport has been laid out on a large tract of land east of the Canadian Pacific Railway station here The town is located about 75 air-line miles south of Edmonton, at approximately 52° 25′ north and 113° 50′ west

Lethbridge

A public customs airport, owned by the city of Lethbridge (junction point on Canadian Pacific Railway, toward southern border of Alberta), lies about 1 mile east from the city, in the southeast quarter of section 5, township 9, range 21 The geographic location is 49° 43′ north, and 112° 50′ west, altitude, 2,980 feet above sea level

Identification markings consist of the standard 100-foot circle with 4-foot band, a prominent landmark is a water tower 120 feet high at the center of the north boundary The surrounding country is level, the only obstructions, besides the water tower, are a few low houses on the west side The surface of the landing area is prairie grass, and runways have been constructed

Refueling facilities and repair services are available at the field, and customs services may be obtained on notification of the officials at the customhouse

Transportation to the city is available by street car or over paved roads The nearest railway station is 2 miles distant, and the nearest medical assistance is three-quarters of a mile away

Preparatory to the placing of Lethbridge on an air-mail route, the city is considering a program that calls for the lighting, leveling, and fencing of the field, and the construction of a hangar It is the intention of the Dominion Government to erect a beacon on the field for the guidance of night fliers

Medicine Hat

The city of Medicine Hat (toward southeast border of Alberta, on the Canadian Pacific) owns a public airport 3 miles from the post office at 50° 2′ north, and 110° 40′ west; the altitude, 2,200 feet above sea level

Standard public airport markings, consisting of a 100-foot circle with a 4-foot band, identify the field Landmarks include a cemetery to the northeast, exhibition buildings to the southeast, and a fox farm toward the south A high-tension power line and a snow fence form obstructions on the north side, on the east there is a telephone line, on the south a telephone line and exhibition buildings The surrounding country is flat and rolling The landing surface of sod comprises an area 2,400 feet square

Refueling facilities are available at the field, and Medicine Hat is readily accessible

The prevailing wind is southwest

Red Deer

A new airport for the city was opened on May 24, 1930 The city is about 8 air-line miles south of Lacombe, on the Canadian Pacific Railway

Vegreville.

The public airport here is owned by M C Watts, Vegreville (the town is 60 miles east of Edmonton, on the Canadian National Railway) The airport is located three-quarters of a mile south of the town, at 53° 31′ north and 112° 3′ west, altitude, 2,200 feet

Identifications consist of a standard 100-foot circle with 4-foot band, local landmarks include a water tower 120 feet high, due north from the northeast corner of the field, and a large barn with corrugated-iron root, a quarter of a mile due east, which has a large red arrow pointing to the field On the north side of the field is low brush about 10 feet high and a building about 600 feet from the corner of the field, toward the southwest there is a highway, 1,600 feet distant, paralleled by a telephone line 25 feet high, toward the northwest this highway is 1,200 feet from the field, toward the west the highway is 900 feet distant The total area, about 800 yards in length, is available for landings, the surface being of good sod on sandy loam

Vegreville is readily accessible by automobile

BRITISH COLUMBIA

Anyox.

This is an unlicensed seaplane port, about 90 miles north-northeast of Prince Rupert (via Chatham Sound, Portland Inlet, and Observatory Inlet) It is located on the west side and toward the upper end of Observatory Inlet and west of Larcom Island, or approximately 55° 25′ north and 129° 48′ west

Granby Bay, the harbor in Anyox, affords a landing place for seaplanes The only available land for airplane landings is a granulated slag pile that has a sloping surface The use of these landing places is not recommended, except in cases of emergency

Burns Lake.

This is not a licensed airport It is situated about 317 miles east of Prince Rupert, following the line of the Canadian National Railway along the Skeena and Bulkley River Valleys, or at approximately 54° 12′ north and 125° 46 west

The landing area, about 1,400 feet long and varying in width from 100 to 600 feet, lies on the shore of Burns Lake, about one-quarter mile from the railway station on the main highway Although considerable grading and leveling has been done, the use of this field is not recommended except in cases of emergency

English Bay

This is a sea-level private seaplane port, owned by the Western Canada Airways (Ltd), 804 Trust and Loan Building, Winnipeg, Manitoba It is located at 49° 17′ north and 123° 7′ 30″ west; on the north shore of Point Grey Peninsula just east of the University of British Columbia grounds and on the west front of Vancouver City

Identification markings consist of the standard equilateral triangle with 25-foot sides and 4-foot band inclosing a cross Adjacent waters provide unlimited landing area for seaplanes

Fernie

A public airport, owned by the city of Fernie (southeast corner of British Columbia), lies 1 mile south of the Fernie post office at 49° 30′ north and 115° 5′ west, altitude, 3,313 feet above sea level

The standard public airport markings, consisting of a 100-foot circle with 4-foot band, identify the field The line of the Canadian Pacific Railway and the Elk River (an eastern tributary of Kootenay River) provide further identification in the daytime and at night coke ovens are visible The surrounding country is mountainous with deep valleys

There is a 2,500-foot north-south runway, and the remainder of the field is under development A good turf surface is drained naturally, the soil is loam Fuel and oil are available at Fernie, 1 mile distant A small wooden hangar has recently been completed

Grand Forks

Grand Forks (on the Canadian Pacific Railway at the United States border) has a public municipal airport, located in the city at 49° 2′ north and 118° 30′ west, altitude, 1,750 feet above sea level, local magnetic variation, 23° 30′ east

The standard 100-foot circle with 4-foot band mark this airport Prominent landmarks visible by day are Observation Mountain, Smelter Lake to the north, and the junction of the Kettle and Granby (North Fork) Rivers to the east The surrounding country consists of a wide level valley extending east and west with numerous emergency landing places No obstructions are encountered near the field The surface is level and good, and there are three runways 2,400 feet in length

Hangar facilities are available for two airplanes, mechanics' service may be obtained upon call, and fuel, oil, and fresh water may be had at the field Hotels are 1 mile distant, the nearest railway station is 1,000 feet from the airport, and the nearest medical assistance is one-half mile away City streets adjoin the airport, and motor transportation is available

Weather conditions are particularly favorable in the vicinity The atmosphere is very dry and clear, summers are warm, and winters mild There are practically no fogs or mists, and the airport is exceptionally free from strongs winds The annual precipitation is 15 inches

Ocean Falls.

Ocean Falls, on the west coast at the upper end of Fisher Channel, is located at the junction of Cousins Inlet and Link Lake, about 200 water-route miles southeast of Prince Rupert, or approximately at 52° 20′ north and 127° 14′ west

There is a harbor, about 1 mile long and three-quarters of a mile wide, that might be used for seaplanes, but this landing place is unlicensed, and its use is not recommended except in cases of emergency There is no level land in the vicinity suitable for airplane landings.

Prince George.

Prince George is located about 468 miles east of Prince Rupert, following the line of the Canadian National Railway, at the junction of Nechako River with Fraser River—approximately 53° 55′ north and 122° 45′ west One-half mile west of the city there is an unlicensed landing field, measuring 1,800 by 500 feet

Seaplanes may land on the adjacent Fraser River or on Tabor Lake, nearly 9 miles east of the town The use of any of these landing places is not recommended, since none of them is licensed

Prince Rupert.

There are no prepared or licensed landing places here, and it is suggested that the possible landing fields be used only in case of emergency Prince Rupert is situated on Kaien Island, near the mouth of the Skeena River, and is the terminal of the northern branch of the Canadian National Railway

Airplanes have landed on the exhibition grounds, identified by a fair-sized yellow building near the civic reservoir The surface of the field has not been leveled Seaplane landings have been made along the side of several floats or wharves on the waterfront In stormy weather, landings are made usually either at Cove Bay, at the north end of the city, or at Digby Bay, Digby Island, at the entrance of the harbor near the Government wireless station Cove Bay is more accessible to the city

Smithers.

This town, a divisional point on the Canadian National Railway, is east-northeast of Prince Rupert, on the Bulkley River about halfway between its source and its mouth, or approximately 54° 45′ north and 127° 10′ west There are no licensed places here, and the various sites mentioned below should be used only in cases of emergency

Seaplanes may land on Lake Kathlyn, about 3¾ miles northwest of Smithers The lake is 1½ miles square, fairly deep in the center, but considerably more shallow toward the shore An easy approach from all directions is possible Two miles southeast of Smithers is Lake Seymour, 1 mile long, one-quarter mile wide, very deep, and with timbered approaches Land airplanes occasionally use a field 2 miles southeast by east of Smithers, but it is often under cultivation and unsuitable for landing purposes The aviation bureau of the Smithers Board of Trade is reported to be improving and developing an airport about 2 miles east of Smithers near the Bulkley River

Stewart.

Stewart is near the west coast, at the head of Portland Canal on the extreme southeast border of Alaska, it is about 115 air-line miles north-northeast of Prince Rupert, or approximately at 55° 55′ north and 130° west

There are no licensed fields or harbors here, though seaplanes have used the large natural harbor which has a width of almost 2 miles

Other possible seaplane landing places are Meziadin Lake, 32 miles northeast of Stewart, with a length of about 20 miles and an average width of about 2 miles; Bowser Lake, 40 miles north-northeast of Stewart and directly north of the western end of Lake Meziadin, with a length of 18 miles and an average width of about 2 miles; Silver Lake, 20 miles northwest of Stewart, 1 mile long and one-half mile wide; Tide Lake, 30 miles northwest of Stewart, 5 miles long and one-half mile wide, and Summit Lake, about 25 miles northwest of Stewart, 3 miles long and one-quarter mile wide All these landing places are unlicensed and should be used only in emergency cases

Swanson Bay.

Four miles from the eastern shore of Graham Reach (opposite the mideastern coast of Princess Royal Island) there is a public sea-level seaplane port, owned by the Western Canada Airways (Ltd), 804 Loan and Trust Building, Winnipeg, Manitoba The geographic position is 53° 3′ north and 128° 28′ west

The local position of the port is identified by a mountain 5,000 feet high, 4 miles west of the port Identification markings—the standard equilateral triangle with 25-foot sides and 4-foot band—indicate the landing area There are no obstructions on the immediate east and west sides, but to the north are mountains 1,500 feet high, and on the south side are mountains 5,000 feet high The surrounding country is a mountainous coastal range averaging 4,000 feet in height

Deep inland water provides a suitable landing place for seaplanes, although there is no beach, a slipway is available at the northeast corner of the port There are no hanger accomodations, but refueling facilities and fresh water are available, aviation gasoline being obtained from a 1,200-gallon tank at the float

Telegraph facilities are available, and there is a Government wireless station at Butedale, 15 miles northwest on Princess Royal Island The nearest medical assistance is Bella Bella Hospital, about 63 airline miles south-southeast of Swanson Bay There are no roads, and local transportation is by motor boat The Western Canada Airways (Ltd) maintains a mess for its crews during July, August, and September

Annual precipitation at Swanson Bay is 270 inches and clear, bright, calm weather is accompanied by early morning fogs dispersing by 9 o'clock Westerly winds outside the bay bring fair, clear weather, the resultant wind direction being northwest at a point 10 miles north of the station and southwest at the station Southeast winds are invariably accompanied by rain or low mist The maximum velocity of a southeast gale is 40 miles per hour, and of a northwest gale 45 miles per hour

Terrace.

This town is on the Skeena River east-northeast of Prince Rupert, on the Canadian National Railway just east of where Kitsumgallum River empties into Skeena River—approximately 54° 30′ north and 128° 40′ west There is no licensed airport here, and landings should be made only in cases of emergency

A pasture, at the eastern boundary of the municipality, is nearly one-half mile in length and 100 to 300 yards wide, it is located between the main highway and the Canadian National Railway

An area of about 1,000 acres of flat land is located approximately 2 miles north of Kitsumgallum Lake and nearly 30 miles from Terrace.

Trail.

This town is near the United States border, approximately 35 airline miles east-northeast from Grand Forks. A public airport, owned by the municipality, is located 7 miles southwest of the town, at 49° 4′ north and 117° 37′ west, altitude, 1,360 feet above sea level.

The standard 100-foot circle with 4-foot band indentifies the field. Prominent landmarks include the Columbia River on the east, and smelter stacks 400 feet high. There are no obstructions on the north, south, and west sides, but on the east side there is a fence along a road and a telephone line. A landing strip, 2,000 feet by 300 feet, is suitable for light aircraft, the remainder of the field is under development. The surface is old grazing ground, now leveled off.

A cone wind indicator is placed east of the center of the field. There are no housing accommodations for aircraft, but plans call for the erection of hangars in the immediate future. Tank trucks from Trail provide temporary refueling service, and water is available at the field.

The nearest shipping point is one-quarter of a mile distant on a branch of the Canadian Pacific Railway, and the nearest medical assistance is at Trail. The highway passing the airport on the north runs from Trail southeast to Waneta on the United States border, and follows the course of the Columbia River.

During the summer conditions are dry and warm, during the winter there is a snowfall of 2 feet or more.

Vancouver.

Lulu Island.—Vancouver owns a temporary public airport on Lulu Island, which is south of the city and between the mouth of the Fraser River and its "North Arm." The geographic position is about 49° 11′ north and 123° 7′ west.

Identification markings consist of the standard 100-foot circle with 4-foot band. Landmarks include the Sturton Road on the east, No. 3 Road on the west, Lansdowne race track on the south, and farm lands on the north. The Canadian National Railway tracks and towers lie toward the south, and the British Columbia Electric Railway track and power lines to the east. A 4½-foot wire fence and farm lands form obstructions on the north, on the east is a 36-foot bare pole line of the British Columbia Electric Railway, on the south are 14-foot stables and an 8-foot board fence of the Lansdowne race track; and on the west is a 25-foot telegraph line. The surrounding territory is flat farming country.

There is an east-west runway 2,671 feet long, and a north-south runway 1,260 feet long. The east-west runway is soft near the hangar in wet weather. A sausage-type wind cone is on the mast over the gasoline station south of the hangar. The hangar is 40 by 64 feet and contains quarters. Light repairs may be made at the field, and refueling facilities are available from a filling station at the airport.

The British Columbia Electric Railway provides a 1-hour service to Vancouver, 8 miles distant. Wireless facilities are available to the Point Grey station (extreme western point of Vancouver Peninsula) by telephone from the airport Accommodations include a waiting room, entry hall, an office, and rest rooms for men and for women

The telegraphic address is Mr A G Service, Alexandria Station, British Columbia

Sea Island—The City of Vancouver will open, in the near future, a permanent municipal airport on Sea Island (separated from the northwest corner of Lulu Island by the "North Arm" of Fraser River), about 10 miles southwest from the principal business center of Vancouver Landing facilities will be provided for both landplanes and seaplanes

The construction program calls for the expenditure of $230,000 in providing a wooden float and slipway, seaplane hangar and workshop, landplane hangar and workshop, concrete aprons in front of hangars, roads and sidewalks, fencing, signs, and gates, light and power mains, telephones etc , water mains and sewers, administration building, motor boat and boathouse, field equipment, tractors, and rollers, hangar and administration building equipment, fire-fighting and first-aid equipment, pumps and flood boxes, excavation and construction of culvert at slough, grading and surface treatment, including four runways and a take-off circle, 1,000 feet in diameter

The first stage of the development will include the construction of a hangar 110 feet by 80 feet for landplanes and a seaplane hangar 120 by 80 feet, also the first unit of the administration building, aprons, runways, landing strips, roads, drainage, filling and ditch-of slipways, motor boat, pumping and field equipment, fencing, fire apparatus, water, light, and sewer

The second stage will include the seaplane channel, providing a cross-river take-off area of approximately 2,650 feet

Vanderhoof

This Canadian National Railway station is located on Nechako River somewhat more than half way from Burns Lake to Prince George, or approximately 54° 1′ north and 124° 1′ west

There are no licensed landing places here, but several fields may be used for emergency purposes The Nechako River is sufficiently wide at this point to permit emergency seaplane landings Lakes Tachik and Nulki, 7 miles southwest of Vanderhoof, are about 1 mile wide and 6 or 7 miles long

Victoria.

A private airport, owned by the British Columbia Airways (Ltd), 900 Fort Street, Victoria, British Columbia, is located on the southeastern extremity of Vancouver Island, at 48° 24′ north and 123° 19′ west, altitude, 150 feet above sea level

The usual private airport markings—a 100-foot circle with 4-foot band—identify the field The total area, 2,400 by 1,350 feet, is available for landing purposes

Seaplanes, in the regular service of Alaska-Washington Airways, use the inner harbor

Brandon.

The public airport at Brandon, southwestern Manitoba, on Canadian Pacific Railway, approximately 125 air-line miles west from Winnipeg), located at 49° 52′ north and 99° 56′ west, is owned by the Brandon Aero Association (Ltd), 909 Rosser Avenue, Brandon, Manitoba The airport lies on the west side of the city, 1,308 feet above sea level

A standard public airport marker, consisting of a 100-foot circle with 4-foot band identifies the field A 24-inch rotating electric beacon identifies the airport at night, and safe runways are indicated by 8 green acetylene boundary lights lined in pairs at the ends of the runways The landing area, circular in shape and about 2,000 feet in diameter, is in process of development

Brandon airport is used by the air-mail service, and refueling facilities are available Hotel accommodations at Brandon are readily accessible

Virden.

A public airport owned by the Board of Trade of Virden (on Canadian Pacific Railway, straight west of Brandon), is located 1 mile south of Virden at 49° 50′ north and 100° 57′ west, altitude, 1,451 feet above sea level

Identifications are a standard 100-foot circle with 4-foot band On the west side of the field is a telephone line 30 feet high, on the northwest side is a house, the southeast corner is covered with willow and poplar growth The total area is available for landing purposes, the surface being of sandy-loam sod with a subsoil of sand

Refueling facilities are available There is a first-aid kit at the airport and a physician at Virden

Winnipeg.

Western Canada Airways airport—At the village of St Charles, 6½ miles west of Winnipeg, is a public airport owned by Western Canada Airways (Ltd), 804 Loan and Trust Building, Winnipeg, Manitoba Its geographic position is 49° 53′ north and 97° 7′ west; altitude, 765 feet above sea level

The standard 100-foot circle with 4-foot band identifies the field Prominent local landmarks visible by day are the Assiniboine River, the Portage Highway, and the St Charles church On the east side of the airport is a 4-foot fence, on the south side are pole lines and a hangar, and on the west side is a pole line, but this line is not opposite the maximum diameter of the airport The surrounding country is flat prairie The total area of the field is available for landing, the surface being of grass, but in the spring drainage is slow owing to the flat character of the land

There is a cone-type wind indicator near Portage Avenue, at the middle of the south end of the field Housing accommodations include one main hangar capable of housing 4 small planes with folded wings and a nose hangar A workshop equipped with tools for minor repairs and a small office are other buildings at the airport Refueling facilities are available, but the nearest fresh-water supply is 400 yards distant

The main line of the Canadian Pacific Railway, which passes across the north end of the field, has a siding at Moore Park, a street railway and an asphalt highway pass the south end of the field. The city of Winnipeg, where accommodations for passengers are available, is readily accessible Several physicians are within 3 miles of the airport, and a hospital is at Winnipeg

Sudden electrical storms occur during the summer; in the winter, snow drifts a great deal

Stevenson airport —Stevenson airport is a public airport owned by the Winnipeg Flying Club, Post Office Box 2265, Winnipeg, Manitoba It is located at 49° 48′ north and 97° 14′ west; altitude, 775 feet above sea level

The standard public-airport markings—a 100-foot circle with 4-foot band—identify the field A north-south runway is 3,400 feet long and an east-west runway extends 3,200 feet

Refueling facilities are provided, and transportation to Winnipeg is available by automobile Two flood lights (English type) of 2,500 candlepower each have just been installed here

St Vital and Fort Garry (*Private Airport*) —This is a private airport owned by J R. Morgan of Morgan Nicholson (Ltd), Union Trust Building, Winnipeg, Manitoba Its geographic position is 49° 49′ north and 97° 9′ west, or about 2 miles south of the Winnipeg city limits, adjoining a public seaplane port on the Red River

Identification markings consist of the standard 100-foot circle with 4-foot band and a cross Among the prominent local landmarks visible by day is the Agricultural College There are no obstructions on the north, on the east is the river, on the south a 3-foot fence; and on the west a telephone line along the highway. The total area of the field is available for landing, but two runways have been constructed, one running north and south 2,200 feet and the other extending 1,600 feet in an east-west direction Runways are indicated by cones on the ground, and a cone-type wind indicator is on the roof of a small hangar on the river bank The field has a turf surface

Besides the small hangar, which is capable of housing two small aircraft with folded wings, there is a second building, 30 by 50 feet, which is used as a hangar and repair shop. Repair services and refueling facilities are available, and water may be obtained from the river or from a near-by well Complete facilities for changing from floats to wheels or vice versa are provided

A main highway runs past the airport, and transportation to Winnipeg is available by automobile or by half-hour street-car service Telegraph facilities are at Winnipeg, which is also the nearest shipping point The telephone number of the airport is 47583 (Winnipeg Exchange)

St. Vital and Fort Garry (*Public Airport*).—A public seaplane port, owned by J R Morgan of Morgan Nicholson (Ltd), adjoins the private airport of that company 2 miles south of Winnipeg on the Red River Its geographic position is 49° 49′ north and 97° 9′ west; altitude, 760 feet above sea level

The port is easily identified in the daytime by the Agricultural College Identification markings consist of the standard equilateral triangle with 25-foot sides and 4-foot band Seaplane landings are made on the Red River, which is 1,000 feet wide at this point There are no obstructions on the river. The maximum distance for clear landing east and west is three-quarters of a mile, north and south, 1½ miles

A canvas wind-direction indicator is on the roof of a small hangar on the river bank In addition to the small hangar, which is large enough for two small planes with folded wings, there is a second building 30 by 50 feet used as a hangar and repair shop The facilities for repairs are complete and include equipment for changing from wheels to floats or vice versa

The main highway south from Winnipeg runs past the port, and Winnipeg is readily accessible either by automobile or by half-hour street-car service The telephone number of the port is 47583 (Winnipeg Exchange)

NEW BRUNSWICK

Fredericton.

The city of Fredericton (southern New Brunswick) owns a public customs seaplane anchorage, located about 45° 58′ north and 66° 39′ west, altitude, 18 feet above sea level

The harbor is identified by a 15-foot equilateral triangle, with 2½-foot band and bar Seaplane landings are made in the St John River basin, where there is a clear runway over 800 yards long

The railway station of the Canadian National and the Canadian Pacific is one-half mile south of the anchorage A wind indicator is on the south shore of the St John River, about 600 yards west of the Fredericton highway bridge Customs facilities are available when the officers at the customhouse are notified Aviation gasoline and oil are provided at the anchorage Telephone and telegraph facilities are available at Fredericton

Moncton.

This is a public airport owned by the city of Moncton (southeastern New Brunswick) and operated by the Moncton Airport (Ltd) The geographic position of the field is 46° 5′ north and 64° 5′ west, or 1¾ miles east of Moncton, altitude, 25 feet above sea level

Markings consist of the standard 100-foot circle with 4-foot band The field is triangular in shape, base measuring 2,400 and sides 1,400 feet The surface is generally level, sloping north and south, the soil is a sandy clay An east-west runway measures 2,000 feet, another, extending southeast-northwest, measures 1,700 feet, a third extends 1,600 feet northeast-southwest

The Petitcodiac River is 1 mile southwest, a large ice house is on the western boundary, and the Shediac Road is three-quarters of a mile southwest Obstructions north of the field include a 4-foot fence and several buildings, on the south side is a 4-foot fence, and on the west side are a 4-foot fence and an ice house Cultivated fields are located toward the north and west, and marshlands toward the south and east The surrounding country is rolling

The nearest railway station is at Moncton, 1½ miles distant. Local transportation is by automobile, over a side road one-half mile long, to an improved road leading to Moncton

Prevailing winds are west and southwest Fogs are infrequent.

St. John.

A public airport, owned by Atlantic Airways (Ltd), Post Office Box 933. St John, New Brunswick, is located at Milledgeville (northwest of St John, on Kennebecasis Bay), at 45° 17′ north and 66° 5′ west, altitude, 50 feet above sea level

The field is identified by an equilateral triangle with 25-foot sides and a 4-foot band It covers 102 acres and has two runways 100 feet wide, one of which is 1,800 feet long and the other, at present 2,200 feet, will be 2,800 feet long when completed

The seaplane harbor, in connection with this airport, contains unlimited waters for seaplane landings

NOVA SCOTIA

Digby

The auxiliary airport at Digby (southwest coast of Nova Scotia) is owned by Rufus R Conner, Chy-an-Dour Farm, Digby, Nova Scotia, and has a geographic position of 44° 35′ north and 65° 45′ west—south of the town, altitude, 350 feet above sea level

The standard auxiliary airport markings, consisting of a 100-foot circle with 4-foot band and 20-foot bar, identify the field "Digby" is painted on a small barn This is an east-west field only, and should not be used except in cases of extreme emergency, as it is doubtful whether the landing area is always serviceable Care should be taken to avoid trees on the boundaries The field lies in a rolling area in which good landing fields are scarce There are no improvements

Halifax

The airport at Halifax (44° 38′ north and 63° 35′ west) has not been licensed The proposed site is on Blue Hill, within 5 minutes motor drive of the city hall, and contains about 100 acres on which it will be possible to construct diagonal runways at least three-quarters of a mile in length

The surface is uneven, and there is a bad swamp in the center through which one of the runways must be constructed The problem of draining this section does not appear to be serious, as there is a good fall to the northwest It is planned to purchase additional property surrounding the airport The power lines running across the land from Connaught Avenue to Mumford Road must be removed, and all power and telephone lines at the ends of runways must be placed underground

Sydney.

This is a public airport owned by the Cape Breton Flying Club, Sydney, Nova Scotia It is located east of the city and harbor, at 46° 10′ 30″ north and 60° 3′ west; altitude, 30 feet above sea level

A standard 100-foot circle with 4-foot band identifies the field There are two runways—one extending 1,900 feet in a northeast-southwest direction and the other 1,800 feet from southeast to northwest. Refueling facilities are available at the field.

ONTARIO

Belleville.

The private airport of Leavens Brothers Air Service, Belleville, Ontario, lies east of the town (north shore of Lake Ontario), at 44° 10′ north and 77° 19′ west, altitude, 286 feet above sea level. The southwest boundary of the field adjoins the Canadian National Railway

This airport is identified by a standard 100-foot circle with a 4-foot band encircling a Greek cross with 20-foot arms A high-voltage transmission line parallels the railway track, and occasional trees surround the airport

Runways have been constructed, but there are no hangar accommodations Pilots should communicate with the owners before reaching this field

Brantford

A public airport, owned by the City of Brantford (on Canadian National Railway, approximately 23 airline miles west-southwest from western end of Lake Ontario), is located near the Grand River 1 mile west of Brantford, at 43° 10′ north and 80° 17′ west, altitude, 775 feet above ea level Standard public airport markings—a 100-foot circle with 4-foot band—identify the field

Obstructions include a boundary fence and occasional trees on the north, on the east is a 3-foot boundary fence, on the south are a private telephone line, boundary fence, and trees 25 feet high, in the southwest corner are telephone and power lines, and in the west are a telephone line 30 feet high and a boundary fence The surrounding country is flat with good emergency landing fields having slight undulations The landing space comprises an area 1,500 feet by 1,100 feet, and a landing strip 2,200 feet long is being developed The surface soil is a light sandy loam

Transportation to the city of Brantford is available by taxi, motor bus or street car The post office at Brantford is 2½ miles from the airport

Prevailing winds in the vicinity are southwest

Burlington Junction

A small landing field here is owned by J V Elliot of Hamilton, Ontario Burlington Station is on the Canadian National Railway about 6½ air-line miles north of Hamilton, western end of Lake Ontario, or at approximately 43° 20′ north and 79° 49′ west

Chatham

One mile east of Chatham (southwest Ontario Province, nearly 12 air-line miles east of Lake St Clair, at junction of Canadian National, Canadian Pacific, and Pere Marquette Railways) there is a private airport owned by Norman A Thompson, 136 William Street North, Chatham, Ontario It lies about 42° 23′ 24″ north and 82° 9′ west, altitude 550 feet above sea level

The field is identified by standard private airport markings consisting of a 100-foot circle and a Greek cross with 20-foot arms. Although there are no facilities for night landings, a flashing beacon is located 4 miles west by southwest The south and east sides of the field are clear, on the north side are an orchard and high-voltage wires, on the west side are woods with an open-gap field The entire field, while limited in area, is suitable for landings There is one hangar, measuring 40 by 40 by 10 feet

Refueling facilities are available at the field, and fresh water may be obtained from a near-by farm Repair facilities and the nearest medical assistance are available at Chatham The nearest railway is 1½ miles distant Transportation to Chatham is by automobile over a good road

Prevailing winds are southwest Fogs are infrequent

Como.

At the town of Como (northern Ontario, approximately 30 air-line miles east of northeast corner of Lake Superior, and on west side of Lake Como, near Canadian Pacific Railway) there is a private seaplane anchorage of the Ontario Provincial Air Service, Parliament Buildings, Toronto, Ontario It is located at 47° 54′ north and 83° 34′ west, altitude, 1,497 feet above sea level

An equilateral triangle with 15-foot sides and 2½-foot band with cross identify the anchorage Seaplane landings are made on Lake Como which has an area of 6 miles by 2 miles

Ford.

A private field with 400-yard runway is owned by Bert McConnell, 154 Cadillac Street, Ford, Ontario It lies opposite Peach Island, facing the upper end of the Detroit River, about 5½ air-line miles east-northeast from Windsor and about 3½ miles east-northeast from Ford

Fort Frances.

The Ontario Provincial Air Service also owns a private seaplane anchorage at Fort Frances (Minnsota border, midwest point of Rainy Lake, at junction of Canadian National and Minnesota International Railways) The geographic position is 48° 37′ north and 93° 24′ west, altitude, 1,122 feet above sea level

Identification marks consist of the standard equilateral triangle with 15-foot sides and 2½-foot band Facilities are limited, and pilots should communicate with the owners before proceeding to this anchorage

Fort William.

A public airport, owned and operated by the Fort William Aero Club, Fort William, Ontario (northwest shore of Lake Superior, on Thunder Bay), lies 8 miles west of the Fort William post office at 48° 23′ north and 89° 21′ west, altitude, 715 feet above sea level, local magnetic variation, 2° east

The standard public airport markings—a 100-foot circle with 4-foot band—identify the field To the west of the airport is the municipal golf course, to the south are the Canadian National Railway line and the Rosslyn Road, a main highway, to the east are farm lands and woods, to the north is the Neebing River Obstructions include scattered jack pines on the north side, a rural telephone line on the east side, telephone and telegraph lines on the south side, and golf links, with scattered jack pines, on the west side The surrounding country consists of flat brush and farm land to the north, east and west, toward the south are the Kaministikwia River valley and hills

The field comprises an area of 110 acres, of which 70 acres have been cleared. The surface, consisting of sand and gravel, is reasonably level. A frame hangar measuring 40 by 45 feet, suitable for housing 2 planes and with a lean-to workshop, is in process of erection The usual engine-overhauling facilities are provided at the field.

Aviation gasoline is available from an underground tank refueling being accomplished from overhead by means of a pump Lubricating oil is also available, and fresh water may be obtained from a well on the municipal golf links on the border of the airport

Local transportation is available by railway and street car or by automobile over first-class all-weather highways The nearest railway station is Twin City Junction, one-half mile to the west The nearest telephone is at the municipal golf links, and the nearest medical assistance is at West Fort William, 5 miles east There are no accommodations at the field for passengers and crew, but Fort William is readily accessible

Haileybury.

A public-customs seaplane anchorage, situated on the western edge of Wahi Bay, northwest point of Lake Timiskaming, is owned by the board of trade, Haileybury, Ontario (northwest shore of Lake Timiskaming, on Northern Ontario Railway and about 5½ air-line miles from the Quebec Province border) The geographic position is 47° 30′ north and 79° 40′ west, altitude, 588 feet above sea level

The standard equilateral triangle with 15-foot sides and 2½-foot band with a bar identify the anchorage Seaplane landings are made in Lake Timiskaming, and there are very few obstructions

Customs facilities are available on notification at the customhouse

Hamilton

Four miles east of the northern part of Hamilton (western end of Lake Ontario) there is a public airport, owned by the city It lies in latitude 43° 14′ north and longitude 79° 47′ 25″ west, altitude, 255 feet above sea level

The standard 100-foot circle with 4-foot band marks the airport The field is surrounded by open country The nearest high-tension wires are about a mile distant, and the nearest overhead telephone wires are well beyond the limits of the field There are two runways measuring, respectively, 1,800 feet and 2,000 feet, the longest lying in the direction of the prevailing wind—northeast-southwest As this airport is an air-mail stop, refueling and minor repair facilities are available The manager resides at the field

The airport is in process of further development It approximates 200 acres in area and is so shaped that runways beyond 3,000 feet in length are possible The ground is naturally level and is being filled Provision has been made for four runways—the longest, 3,850 feet, will run northeast to southwest, the second, 3,600 feet, will extend east and west, and the third, 3,350 feet long, will lie in a northwest-southeast direction, the fourth and shortest runway, about 3,000 feet long, will cut across the other three runways in a north-south direction The runways will have a minimum width of 150 feet, later increased to 250 feet

Tentative plans call for the erection of a primary group of buildings, including a hangar with 80-foot clear entrance and about 1,200 square feet of clear floor space The building is to be provided with machine shops, storeroom, assembling room for wings and spare parts, a general waiting room, pilots' quarters, and administration rooms.

Kingston

Kingston Flying Club—A public airport, owned and operated by the Kingston Flying Club, is located on the northern edge of Kingston (eastern end of Lake Ontario) at 44° 14′ north and 76° 30′ west, altitude, 350 feet above sea level

The field is marked by the standard 100-foot circle with 4-foot band There is a northeast-southwest runway 1,700 feet long, and two others are in process of development Plans call for three runways converging in a circle Provisions are made for a hangar 45 feet in depth with a door 60 feet wide and 12 feet high Three small rooms will adjoin the main hangar, to be used as office, machine shop, and storeroom

The city of Kingston is readily accessible

Curtis Reid Aircraft Co—This company (post-office box 2407, Montreal, Quebec) owns and operates a public seaplane port on the shore of Kingston harbor at the mouth of the Cataraqui River and the entrance of the Rideau Canal The exact geographic position is 44° 14′ 6″ north and 76° 28′ west, altitude, 280 feet above sea level

The port is identified by the standard equilateral triangle with 25-foot sides and 4-foot band "Curtis Reid Seaplane Port" is painted on the hangar A lighthouse is located a quarter of a mile south On the north side of the port is Belle Island, on the east side, the bank of the river with trees and houses about 60 feet high, on the south side, a bridge and causeway 40 feet high and a wreck near the bridge, on the west side, the city of Kingston, and toward the northwest, factory chimneys from 50 to 80 feet high An area measuring 1 by ¾ mile of quiet sheltered water is available for seaplane landings There is a 16-foot boat channel and the average depth at 50 feet from the shore is 4 feet

Hangars and slipways have been provided and refueling facilities are available Kingston is about one-half mile distant

Prevailing fair-weather winds are southwest

Kitchener.

A public airport, owned jointly by the municipalities of Kitchener and Waterloo (situated about half way between Hamilton and southern Lake Huron), is located between those two cities, at 43° 27′ north and 80° 31′ west, altitude, 1,056 feet above sea level

The standard public airport markings—a 100-foot circle with 4-foot band—identify the field The landing area is under development, but there is a northeast-southwest runway 2,200 feet long

Lake Agnes

A seaplane base is maintained here by the Canadian Airways (Ltd) at about 48° 15′ north and 91° 20′ west Lake Agnes is in the Hunter Island district of southwest Ontario Province near the Minnesota border.

Lake Osisco.

A seaplane station, with runway over 800 yards in length, is maintained on West Bay of Lake Nipissing, which is located about 46° 13′ north and 80° 10′ west

Leaside.

See Toronto.

London.

Four and one-half miles southwest of London (which is nearly half way between Hamilton and Detroit), on the Lambeth Highway, there is a public airport, owned and operated by the city It has a geographic position 42° 55′ north and 81° 17′ west, altitude, 874 feet

Landmarks consist of a paved highway on the south side, a narrow road on the west, and farms on the north and east sides The site consists of 140 acres and has four runways, three of which are 3,000 feet and one 1,200 feet long About 65 acres, tile drained, leveled, rolled, and seeded, comprise the extent of the present surface development

A large beacon was established on a 52-foot tower by the Dominion Government This is one of a chain of beacons between Montreal, (Quebec Province) and Detroit (Michigan) Weather reports are received and sent from this airport at 7 a m, 12 noon, and 4 p m., and more often when necessary A hangar, with capacity for 6 small planes, has been constructed Refueling facilities, water, and a telephone are available London is accessible over highways

Minaki

The Ontario Provincial Air Service, Parliament Building, Toronto, Ontario, owns a private seaplane anchorage at Minaki (extreme western Ontario Province, on Canadian National Railway) in the lake region of the Winnipeg River, at 49° 59′ north and 94° 40′ west, altitude, 1,066 feet above sea level

The anchorage is identified by an equilateral triangle with 15-foot sides and 2½-foot band with a cross A water area measuring 6 miles by 1½ miles is available for seaplane landings Facilities are limited, and pilots should communicate with the owners before proceeding to this anchorage

North Bay

A commercial seaplane station on Trout Lake, 4 miles northeast of North Bay (northeast shore of Lake Nipissing), at about 46° 19′ north and 79° 23′ west, has been used by the Laurentide Air Service of Montreal

Oba Lake

The Ontario Provincial Air Service also owns a private seaplane anchorage on Oba Lake (northeast of eastern end of Lake Superior. on Algoma Central & Hudson Bay Railway), at 48° 40′ north and 84° 13′ west, 1,200 feet above sea level

The standard private-seaplane-anchorage markings—an equilateral triangle with 15-foot sides and 2½-foot band with a cross—identify the anchorage Seaplane landings are made in Oba Lake, which measures 12 by 2 miles Facilities are limited, and pilots should communicate with the owners before proceeding to this anchorage

Orient Bay.

Another private seaplane anchorage is owned by the Ontario Provincial Air Service at Orient Bay (southeast extremity of Pijitawabik Bay, which is the southeast arm of Lake Nipigon). The geographic position is 49° 27′ north and 88° 9′ west; altitude, 852 feet above sea level

The standard equilateral triangle with 15-foot sides and 2½-foot band with cross identify the anchorage Seaplane landings are made in Orient Bay Facilities are limited, and pilots should communicate with the owners before going to this anchorage

Ottawa.

The public airport, owned by the Ottawa Flying Club, Post Office Box 747, Ottawa, Ontario, is situated 7 miles due south of the Parliament Buildings in Ottawa, at 45° 20′ north and 75° 41′ west, altitude, 272 feet above sea level

Identification markings of this "Lindbergh Field" consist of the standard 100-foot circle with 4-foot band The field is on the east side of the Prescott Highway and the Rideau River, the Black Rapids Dam lying southwest of the field Toward the north is the Ottawa Hunt and Golf Club, and a brickyard is 3½ miles distant in the same direction There are no obstructions near the field The available landing area, which comprises about one-half square mile, is marked by yellow cones The northern corner of the field has not been leveled and is unsuitable for landings The soil is sandy

There are hangar facilities for seven light airplanes with folded wings, but since most of this space is used by the airplanes of the Ottawa Flying Club and since one hangar is privately owned, the hangar facilities for visiting aircraft are limited Large airplanes are usually picketed to the field Refueling facilities are available, and supplies of aviation gasoline and lubricating oil are maintained. Minor repair services by a mechanic are provided

Ottawa, the nearest shipping point, is readily accessible by automobile The telephone number for the field is Carling 2476 A caretaker is always present On notifying customs authorities in advance, customs facilities are available

Prevailing winds are northwest.

Port Arthur.

A public seaplane anchorage on the harbor, inside the breakwater, at Port Arthur (which is just north of Fort William, on Thunder Bay, Lake Superior) is owned by the city of Port Arthur, Port Arthur, Ontario The geographic position is 48° 26′ north and 89° 14′ west, altitude, 602 feet above sea level

The standard equilateral triangle with 15-foot sides and 2½-foot band with bar mark the anchorage Prominent local landmarks usually visible by day include a waterworks standpipe, the provincial jail building, and the Whalen Building The last-named building is also visible at night On the north side of the anchorage is the lake shore, on the east a breakwater and grain elevator, on the south a breakwater, and on the west the Canadian Pacific Railway passenger and freight dock The surrounding country consists of hills and mountainous terrain

There are no hangars, but repairs may be obtained at local garages. Arrangements for refueling may be made with local oil companies, and fresh water may be obtained from the city hydrants Hotels are readily accessible at Port Arthur, where telegraph, telephone, and wireless facilities, as well as medical assistance, are available. Railway and shipping facilities are directly in front of the landing places.

The anchorage is open to navigation until about December 5, when ice forms in the harbor and the anchorage can not be used by seaplanes until the following April or May

Remi Lake.

The Ontario Provincial Air Service, Parliament Buildings, Toronto, Ontario Province, owns a private seaplane anchorage on Lake Remi (northern Ontario, in the Cochrane district and near the Canadian National Railway), at 49° 27′ north and 82° 9′ west, altitude, 794 feet above sea level

The anchorage is identified by the standard equilateral triangle with 15-foot sides and 2½-foot band with a cross The area of Remi Lake is 3 by 4 miles

Riverside

A small landing field here is owned by A H Strickland, Sandwich, Ontario (Sandwich is about 2½ miles southwest of Windsor, extreme southwest Ontario Province)

St. Catharines

A public airport, owned and operated by the Haney Repair Service, 50 Niagara Street, St Catharines, Ontario, lies at 43° 9′ north and 79° 11′ west (a few miles northwest of Niagara Falls); altitude, 400 feet above sea level

Identification marks consist of the standard 100-foot circle, with a 4-foot band The portion of the field suitable for landings is defined by cone markers.

Sault Ste. Marie.

A private seaplane anchorage on the north shore of St Mary River, owned by the Ontario Provincial Air Service, is located at 46° 31′ north and 84° 20′ west; altitude, 938 feet above sea level

The standard equilateral triangle with 15-foot sides and 2½-foot band with a cross identify the anchorage An area of 4 miles by 1 mile on the St Mary River is available for seaplane landings The surrounding country is generally suitable for forced landings

There are workshops and a fireproof hangar at the anchorage.

Sioux Lookout.

Northern Aerial Minerals Exploration Public Port —Two miles due south of the town of Sioux Lookout (western Ontario, on Canadian National Railway, about halfway between Lake Nipigon and the western border of the Province) there is a public seaplane port. owned by the Northern Aerial Minerals Exploration (Ltd), 100 Adelaide Street west, Toronto, Ontario The geographic position is 50° 5′ north and 91° 55′ west, altitude, 1,171 feet above sea level; local magnetic variation, 5° east

Standard markings, consisting of an equilateral triangle with 25-foot sides and 4-foot band, identify the port The adjacent wooded shore of Abram Lake is the chief obstruction A shoal is marked by a flag one-half mile south of the slipway The surrounding area consists of brush and lakes The landing area for the port, about 1½ by 4 miles, is on Abram Lake, which has a total area of 6 by 2 miles Ice forms on the lake in December and remains until April

There is one hangar, measuring 60 by 70 by 14 feet, and mooring and beaching facilities are available for 20 aircraft Aircraft and engine shops at the port are completely equipped for all repair work except rebuilding. Aviation gasoline, lubricating oil, and water are available at the port, gasoline being dispensed from two 1,000-gallon underground tanks through a gravity feed and meter line at the slipway.

The nearest railway station is 2 miles distant. Telegraph and wireless facilities are available at Sioux Lookout, the wireless station of the Ontario Forestry Branch being located there. Accommodations for passsengers and crews are limited at the port, but there is a taxi service to the town, where hotel accommodations are available.

The summer period at Sioux Lookout is approximately from June 1 to October 31. The port can not be used during the spring and fall when ice is forming and breaking.

Western Canada Airways Port.—The private seaplane port of Western Canada Airways (Ltd.), 804 Trust and Loan Building, Winnipeg, Manitoba, is located on the southeast arm of Pelican Lake, southwest of Sioux Lookout, at 50° 6′ north and 91° 57′ west, altitude, 1,171 feet above sea level, local magnetic variation, 5° east.

The port is identified by the prescribed 25-foot equilateral triangle with 4-foot band and a cross. A large Indian school is 2 miles northwest, and on the north side of the port there is a forestry tower and a railway bridge across the narrows. There are no obstructions on the south and west sides. The surrounding country consists of lakes and low hills. Seaplane landings are made on Pelican Lake, pontoon equipment being used in the summer and skis in the winter.

There is a cone-type wind indicator on the workshop. Mooring equipment during the summer consists of buoys and a boat, during the winter nose hangars are used. Aviation gasoline, lubricating oil, and water are available at the port, refueling being accomplished by pump and drums. A slipway and hoist make up part of the port equipment, and repair services are furnished by a staff of mechanics.

The nearest railway shipping point is one-quarter of a mile distant. Hotel accomodations are available at Sioux Lookout. There are telegraph and wireless facilities, the telegraphic address being "Western Canada Airways, Sioux Lookout, Ontario." A hospital is one-quarter of a mile distant.

Although the winters are cold, the summer period, from about June 1 to October 31, is balmy. The port can not be used during periods of the spring and fall when ice is forming or breaking up.

Provincial Air Service Anchorage.—The Ontario Provincial Air Service, Parliament Buildings, Toronto, Ontario, owns a private seaplane anchorage on Pelican Lake, which has an area of 4 by 1½ miles. The geographic position is 50° 5′ north and 91° 57′ west, altitude, 1,171 feet above sea level.

The standard equilateral triangle with 15-foot sides and 2½-foot band with a cross identify the anchorage. Except in case of emergency, this port should not be used.

Stratford

The public airport at Stratford (junction point on Canadian National Railway, nearly two-thirds of distance between Lake Ontario and Lake Huron) is owned by the city. It has a geographic position of 43° 21′ north and 81° 1′ west (about 1¼ miles southwest of Stratford post office), altitude, 1,191 feet above sea level

Identifications consist of the fixed 100-foot circle with a 4-foot band Obstructions on the north side include a group of fir trees, a house and barn, and an electric line about 1 mile distant; on the northeast is a telephone line about 300 yards from the field, the east side is wooded, on the south are a house and barn and a small orchard, toward the west are telephone lines on the main highway and a house and barn off the limits of the field The surrounding country is agricultural, with open fields and generally good conditions for forced landings The soil is heavy loam, and the surface is generally level The total area is available for landing, although some surface improvements are in process

Prevailing winds are west and northwest, and there is occasional fog

Sudbury.

A private seaplane anchorage of the Ontario Provincial Air Service, Parliament Buildings, Toronto, Ontario Province, is situated on the west end of Ramsey Lake and a little south of the town of Sudbury (which is north of Georgian Bay and northwest of Lake Nipissing and is a junction point on the Canadian Pacific Railway), at 46° 28′ north and 80° 59′ west, altitude, 820 feet above sea level

The standard equilateral triangle with 15-foot sides and 2½-foot band with a cross identify the anchorage Seaplane landings are made in Ramsey Lake, which has an area of 3½ by 2 miles

Timagami

The Ontario Provincial Air Service owns and operates another private seaplane anchorage at the northeast extremity of "Northeast Arm" of Lake Timagami (which is north of Lake Nipissing and west of Lake Timiskaming), the "Arm" is 10 by 1½ miles in area The geographic position of the anchorage is 47° 5′ north and 79° 48′ west, altitude, 989 feet above sea level

Identification markings consist of the standard equilateral triangle with 15-foot sides and 2½-foot band with a cross Facilities are limited, and pilots should communicate with the owners before proceeding to this anchorage

Toronto

De Lesseps Airport—This is a public airport, owned by Toronto Airport (Ltd), Weston, Ontario It lies northwest of Toronto, at 43° 42′ north and 79° 30′ west, altitude, 400 feet above sea level.

The standard 100-foot circle with 4-foot band identifies the field The surrounding country is a residential and industrial area and, as the airport is surrounded by obstructions, care should be taken when landing or taking off The Canadian Kodak Co's factory is located on the southwest boundary. The total area of the field is available for landing, the surface being of good sod, level, and well drained

A fabric cone-type wind indicator is near the administration building on a standard and is illuminated at night Otherwise the only night landing facilities are flares, which are lighted on notification There are two hangars, each measuring about 60 by 80 feet Fuel and fresh water are available at the field, and refueling is accomplished by means of a pump Repair services may also be had at the airport

Automobile and street-car transportation are available northwest to Weston of southeast to Toronto, where hotel accommodations for passengers and crews are ample The field is used by commercial firms providing taxi service and by Canadian Airways (Ltd) as air-mail contractors The nearest medical assistance is at Weston, 1 mile distant, which is also the nearest railway station for both Canadian National and Canadian Pacific Railways The telephone number at the field is Junction 9009

Prevailing winds are west, southwest, and northwest Fogs occur only when general in the district

Leaside Airport—The Toronto Flying Club, 21 Richmond Street West, Toronto, Ontario, owns and operates a public airport 4½ miles northeast of the Toronto City Hall and near the village of Leaside, at 43° 42′ north and 79° 21′ west, altitude, 426 feet above sea level

Identifications are a 100-foot circle with a 4-foot band The field, which covers approximately 150 acres, has an east-west runway 2,640 feet long and a north-south runway 1,800 feet long

There is a cone-type wind indicator on the roof of the hangar and one on the roof of the office building The only night lighting equipment consists of flares, which may be lighted on request Hangar accommodations and refueling facilities are available at the field

It is 1 mile to the nearest railway (Canadian Pacific), and there is a bus service from the corner of the airport

Toronto Harbour (*Public Port*) —A public seaplane port, owned by the Harbour Commission, Fleet Street, Toronto, Ontario, is located in Toronto Harbour at 43° 38′ 45″ north and 79° 22′ west, altitude, 245 feet above sea level

The standard equilateral triangle with 25-foot sides and 4-foot band identifies the port The city of Toronto, with high buildings, is toward the north The inner harbor is surrounded on the river side by pleasure resorts with power lines and low buildings, but these do not constitute a serious hazard except during fog conditions The seaplane landing area in the inner harbor measures 10,000 feet by 5,500 feet A slipway has been constructed at the foot of Scott Street, and refueling facilities are available at the port

The nearest shipping point is three-fifths of a mile distant Telegraph and telephone facilities are readily available at Toronto Plans call for expenditures of $569,000 and ultimately $2,000,000 for seaplane facilities

Prevailing winds are southerly, and the total number of fogs during the past four years has been 90, with an average duration of 1 to 2 hours

De Haviland Airport—This is a private airport, owned by De Haviland Aircraft Co of Canada (Ltd), 372 Bay Street, Toronto, Ontario The geographic position is 43° 45′ north and 79° 29′ west, altitude, 650 feet above sea level, local magnetic variation, 7° west The airport is located on Sheppard Avenue, a quarter of a mile west of Dufferin Street, along a Canadian National Railway siding The factory and hangar of the De Haviland Aircraft Co. of Canada, with large signs on the roof, are visible

The prescribed 100-foot circle with 4-foot band and a cross are found on this field Seventy feet from the north boundary is a domestic power line 30 feet high, on the east and south sides is a fence $3\frac{1}{2}$ feet high, and on the west side is a 4-foot fence, with a 20-foot telegraph line on the far side of the airport boundary and railway. The total area is available for landing, the surface being a drained and graded turf An east-west runway is 2,275 feet long and a north-south runway extends 1,330 feet

A fabric-cone wind indicator has been placed on a 20-foot pole above the roof of the hangar The De Haviland aircraft factory is located at the airport, factory hours are from 8 a m to 5 30 p m. on week days and from 8 a m to 12 30 p m on Saturdays The factory building has a door measuring 75 feet, and one hangar has a door width of 32 feet Aviation gasoline is furnished from a 1,000-gallon tank by means of an electric pump Lubricating oil and fresh water also are available The airport accommodations include a pilots' rest room Automobile transportation to Toronto can be furnished The telegraphic address is 372 Bay Street, Toronto, and the telephone number is Toronto Exchange Hudson 5140 Prevailing winds are southwest, west, and northwest Fogs and poor visibility are seldom encountered, and only when the condition is general in the district

The public customs airport south of Walkerville (extreme southwest Ontario, just east of Windsor) is owned by the Aviation League of the Border Cities, Windsor, Ontario It has a geographic position of 42° 15′ north and 83° west, altitude, 580 feet above sea level The local position may be described as 6 miles southeast of the neon beacon on the Penobscot Building in Detroit, Mich.

Identification markings consist of a standard 100-foot circle with 4-foot band On the north side of the airport is a tower of the Chrysler factory, 1 mile distant, and two wireless towers about one-half mile distant, the east side is open, except for woods about one-fourth mile distant, on the south, along the road, are telephone and power-transmission lines, on the west side are telegraph lines on the Père Marquette Railway The west and south obstructions are identified at night by 28 obstruction lights The surrounding territory is level with open fields The field is square, measuring 3,000 feet in each direction, and the total area is available for landing

The airport is adequately lighted at night by boundary and obstruction lights, an illuminated wind indicator, a revolving standard 24-inch beacon on a 51-foot tower, and a "B B. T" intermediate flood light The illuminated fabric cone-type wind indicator is on a small building 100 yards west of the hangar Notification of night landings should be given, and lighting services requested, in advance A steel hangar measuring 60 by 80 feet, capable of housing 8 light planes, is located on the southern edge of the field, adjoining a well-equipped repair shop and a room for student instruction and groundwork A fuel and oil station, located 300 feet west of the hangar, is equipped with modern refilling devices Customs facilities are available on notification of the officials at the customhouse The nearest railway station is at Windsor, where ample accommodations are also available for passengers and crews Transportation to Windsor, 4 miles distant, is by automobile over first-class gravel roads The field is used by the air-mail service to Dearborn, Mich

Prevailing winds are southwest and west, and there is occasional fog and thick visibility

Woodstock

A private airport, owned by T F Williams, Rural Route No 1, Woodstock, Ontario, lies 4 miles south of Woodstock and west of a pond and swamp (Woodstock is in southwest Ontario, northeast of London, and is a junction point for Canadian Pacific and Canadian National Railways) The geographic position is 43° 4′ 30″ north and 80° 46′ west, altitude, 1,125 feet above sea level, local magnetic variation, 7½° west

Identification markings consist of a standard 100-foot circle with a Greek cross having 20-foot arms On the north side of the field is a 4-foot fence, on the east side is part of an orchard, a hangar, and fence, on the south side is a 4-foot fence, and on the west side there are no obstructions except an increased gradient The surrounding country is agricultural with good fields for forced landings The surface of the field is sod and the total area, measuring about 400 by 500 yards, is available for landings

A cone-type wind indicator is at the inner angle of an "L" at the corner of the orchard. There is one hangar with dimensions of 42 by 48 feet Aviation gasoline, lubricating oil, and fresh water are available, and repairs my be effected locally or at Woodstock

It is 4 miles to Woodstock, the nearest railway station, where hotel accommodations are available for passengers and crews Transportation to the city is available by automobile over gravel roads The telephone number of the airport is Wodstock 327 R 12

Prevailing winds are southwest in summer and north in winter Fogs are rare The general location of the field appears high when approached from the east and, under conditions of extremely low ceiling, there is a safe course through this locality at least 3 miles south of Highway No 2, which passes over the field

QUEBEC

Cap de la Madeleine.

A public airport, owned by Fairchild Aviation Co, Grand' Mere, Quebec Province, is located here (near junction of St Maurice River with the St Lawrence), at 46° 22′ north and 72° 32′ west, altitude, 120 feet above sea level The local position of the field may be described as south of the main line of the Canadian Pacific Railway in an angle between the railway and the Grand' Mere—Three Rivers Highway

The airport is identified by a standard 100-foot circle with 4-foot band Three chimneys of a large paper mill are on an island at the mouth of the St Maurice River There are no obstructions on the north, east, and west sides, but a low transmission line is located on the south side The surrounding country is flat

A north-south runway extends 1,300 feet, and an east-west runway is 2,600 feet long The soil is sandy and the surface good Refueling facilities are available, and fresh water is provided on notice There are no repair facilities as yet

Transportation is available from the airport to a hotel, 1½ miles distant on a good motor road; to the nearest railway, a quarter of a mile distant, and to the nearest medical assistance, about 1 mile from the airport

Prevailing winds are west in good weather and east in cloudy or rainy weather

Chicoutimi

A commercial seaplane station, with runway over 800 yards in length, is on the Saguenay River at the mouth of the Chicoutimi River (which is two-thirds of the way up toward Lake St John), at approximately 48° 26′ north and 71° 4′ west

Father Point.

See Point au Pere.

Grand' Mere.

See Lac a la Tortue.

Lac a la Tortue.

A private seaplane anchorage, owned by Fairchild Aviation Co, Grand' Mere, Quebec Province, is located near Grand' Mere and directly north of Three Rivers, at 46° 36′ north and 72° 40′ west, altitude, 439 feet above sea level.

The anchorage is identified by a standard equilateral triangle with 15-foot sides and 2½-foot band with cross Seaplane landings are made in Lac a la Tortue (approximately 2 miles east of Grand' Mere), the base extending for 800 yards The seaplane anchorage is adjacent to the Fairchild Aviation Co's landing field, which has 3 runways 1,600 feet long The field is 600 feet wide Gasoline, oil, and general repairs are available

Before proceeding to the anchorage, pilots should communicate with the owners, Fairchild Aviation Co, Grand' Mere, Quebec Province

Longueuil

Fairchild Aircraft (Ltd), Public Port—This public seaplane port is located on the east side of the St Lawrence, 5 miles northeast from the business center of Montreal, at 45° 33′ north and 73° 29′ 44″ west, altitude, tidewater elevation The port is owned by Fairchild Aircraft (Ltd), 505 Confederation Building, Montreal, Quebec and adjoins the private airport in connection with that company's factory

The seaplane port is identified by the standard markings, consisting of an equilateral triangle with 25-foot sides and 4-foot band The landing area is 1 mile square

Fairchild Aircraft (Ltd), Private Port—A private airport is in process of development by the owners, Fairchild Aircraft (Ltd), 505 Confederation Building, Montreal, Quebec It lies 5 miles northeast from the business center of Montreal, at 45° 33′ 29″ north and 73° 29′ 25″ west, altitude, 50 feet above sea level

The field, containing 265 acres, is identified by the standard private airport markings—a circle with outside diameter of 100 feet and a 4-foot band, encircling a Greek cross with 40-foot arms. There are four runways, each 200 by 1,850 feet Plans call for runways 3,500 feet long and one, in the direction of the prevailing wind, to be 6,000 feet long The factory of the Fairchild Aircraft (Ltd), 140 by 260 feet, is located in one corner of the field There are complete facilities for repairs, overhauling and refueling Changes may be made from floats to wheels or wheels to floats

Matapedia Lake

A private seaplane anchorage, owned by Compagnie Aérienne Franco Canadienne, 266 St James Street, Montreal, Quebec, is located on Matapedia Lake (south side of Lower St Lawrence River, along Canadian National Railway), at about 48° 33′ north and 67° 27′ west, altitude, 513 feet

Identification markings consist of the standard equilateral triangle with 15-foot sides and 2½-foot band with a cross The entire lake area, about 3 by 10 miles, is available for seaplane landings.

Montreal

St Hubert Airport—This public customs airport, owned by the Department of National Defence, Ottawa, Ontario, lies at 45° 31′ north 73° 25′ west; altitude, 87 feet above sea level The local position is about 6 air-line miles east from the Montreal business center, on the east side of the St Lawrence River.

The field is readily identified by the dirigible mooring mast and by the standard public airport markings, consisting of a 100-foot circle with 4-foot band A prominent obstruction is the mooring mast 171 feet high, supported by 8 main steel posts and with a landing platform on top. Runways 2,000 feet in length have been constructed on the field, which is 1½ by 1¼ miles Hangar accommodations are available, one measuring 80 by 100 feet and capable of accommodating 13 planes with wings folded Space has been provided in this hangar for a machine shop The floor is made of heavy road material Repair facilities are available at Montreal, which is readily accessible from the airport There are no lighting accommodations nor facilities for radio communication Extinguishers constitute the only fire apparatus

The appointment of an official weather observer is pending

Reid Airport—A public airport, owned by the Curtiss-Reid Aircraft Co, post office box 2407, is located at Cartierville(a suburb directly west of Montreal on Riviere des Prairies, which forms west shore of Montreal Island), 45° 32′ north and 73° 42′ west, altitude, 100 feet above sea level

Identification markings consist of the standard 100-foot circle with a 4-foot band The total area of the field is suitable for landing Refueling and repair facilities are available

The city of Montreal is perhaps more readily accessible from this airport than from any other airport in the vicinity, via Canadian National Railway

La Salle Airport—This a public airport owned by Dominion Aircraft Co (Ltd), 305 Castle Building, Stanley and St Catherine Streets, Montreal, Quebec Its geographic position is 45° 25′ north and 73° 36′ west, or about 6 air-line miles south of the Montreal business center and near Lachine Rapids; altitude 50 feet above sea level

Standard public airport markings, consisting of a 100-foot circle with 4-foot band, identify the field The landing area is 1,800 feet in length Hangar accommodations and refueling facilities are available at the field

Curtiss-Reid seaplane Port—The Curtiss-Reid Aircraft Co, post office box 2407, Montreal, Quebec, owns and operates a public seaplane port at Cartierville (on Riviere des Prairies), at 45° 31′ north and 73° 46′ 30″ west; altitude, 61 feet above sea level The river runs east and west, and the seaplane base is in a wide portion of the river that is plainly visible from the air

Standard public seaplane port markings, consisting of an equilateral triangle with 25-foot sides and 4-foot band, identify the port. The port is bounded on the southeast by a public road and on the northwest by the river Obstructions on the north side consists of shore trees 30 feet high and a land elevation of 15 feet, on the east side is the open river with rapids 4 miles distant downstream, on the south side are shore trees 30 feet high and a land elevation of 15 feet, and on the west side is the open river with rapids 1 mile upstream The surrounding country is generally low An area of sheltered water, 2 miles by ½ mile, is available for landing seaplanes The current of the stream is 1 mile per hour, and there is no navigation and very little driftwood Refueling facilities are available

The nearest shipping point is Roxboro Station on the Canadian National Railway, 2 miles to the west

Vickers Airport—Vickers Airport is a private seaplane port owned by Canadian Vickers (Ltd), Post Office Box 550, Montreal, Quebec It is situated at the east end of Montreal Harbor, immediately below the Canadian Vickers dry dock, and has a geographic position of 45° 34′ north and about 73° 31′ west, altitude, 50 feet above sea level

The standard markings for a private seaplane port, consisting of an equilateral triangle with 25-foot sides and 4-foot band with a cross, identify the port The landing area on the St Lawrence River is approximately 2,600 feet square Complete refueling, repair, and overhauling facilities are readily available, as the Canadian Vickers factory adjoins the port

Pointe aux Trembles—A private seaplane anchorage of the Compagnie Aérienne Franco Canadienne, 266 St James Street, Montreal, Quebec, is located at Pointe aux Trembles (on Island of Montreal, about 8 air-line miles north of business center of Montreal), at 45° 39′ north and 73° 29′ west, altitude, 50 feet above sea level

The anchorage is identified by the standard equilateral triangle with 15-foot sides and 2½-foot band and cross An area in the St Lawrence River, measuring three-quarters of a mile by 3 miles, is available for landing seaplanes

Pointe au Pere (or Father Point).

A seaplane base is maintained here by the Canadian Airways (Ltd), on the south shore of the Lower St Lawrence, in the Rimouski district, at approximately 48° 31′ north and 68° 27′ west

Quebec City.

Canadian Transcontinental Airways Airport—A public airport, owned and operated by Canadian Transcontinental Airways, 111 Côte de la Montagne, Quebec City, Quebec, is located 5½ miles from the Quebec City post office, at 46° 46′ north and 71° 17′ west, altitude, 300 feet above sea level

Standard public airport markings, consisting of a 100-foot circle with 4-foot band, identify the field The St Lawrence River lies one-quarter of a mile southeast Obstructions on the north side of the field include several farm buildings, some 50-foot trees, and a dangerous high-tension power line; toward the northeast and east are woods with 30-foot trees; to the southeast are several houses and 30-foot trees, but these hazards are lower because of the slope toward the river, on tht south side, the Quebec Bridge is one-half mile distant, rising 100 feet from the water, on the southwest are several farm buildings and 30-foot telephone poles, on the west are 30-foot telephone poles and 25-foot trees In the middle of the field are two small frame barns The surrounding country consists of farms, some woods, and no abrupt rises of land The total area of the field is available for landing purposes The soil is light loam, and gradual slope to the southeast affords good natural drainage

There are three hangars each measuring 60 by 50 by 18 feet. Refueling facilities are available, but there is no fresh water

The prevailing winds are southwest during the summer and northwest and northeast during the winter Occasional fogs occur in this vicinity

Sillery Seaplane Port—A private seaplane port, owned by the Compagnie Aérienne Franco Canadienne, Edifice "Le Soleil," Rue de la Couronne, Quebec City, Quebec, is located between Quebec City and the village of Sillery to the southwest, on the north shore of the St Lawrence River Its geographic position is 40° 46′ north and 71° 16′ west, altitude tidewater elevation The Canadian Transcontinental Airways airport is one-half mile east of this seaplane base A white hangar has the name of the operating company "Compagnie Aérienne Franco Canadienne" painted on the front

Identifications consist of an equilateral triangle with 25-foot sides and a cross—the standard private seaplane port markings. Seaplane landings are made in an area of the St Lawrence River To the north of the port are hills, woods, and the village, on the east are hills There are no obstructions on the south and west sides

Aviation gasoline, lubricating oil, and fresh water are available, as well as minor repair services There is one hangar, measuring 55 by 47 feet Hotel accommodations are available in Quebec City, and passengers and crews may obtain accommodations at Sillery Village. The nearest medical assistance is at Sillery Village, 1 mile distant.

Transportation to Quebec City is by automobile over good roads, or by street car

Rimouski

A public airport, owned by the Department of National Defence, Ottawa, Ontario, is located on the south shore of the lower St Lawrence at the mouth of Rimouski River, 48° 28′ north and 68° 30′ west; altitude, 78 feet above sea level The field is at the south end of Rimouski wharf, 3 air-line miles south-southwest from Father Point (Point au Père) where there are marine buoys and a lighthouse

The markings, consisting of a 100-foot circle with a 4-foot band as fixed for this class of airport, identify the triangular-shaped field The total area is available for landing purposes The surface is sod, the soil is light clay loam, there is natural and tile drainage, and the field slopes gently to the north

There is a wind cone on the hangar Aviation gasoline and oil are available The one hangar at the airport measures 18 by 50 by 60 feet Repair facilities are available from May to November, the services being effected by personnel of the air-mail contractor.

Portable fire extinguishers have been provided at the field There is a hotel one-quarter of a mile distant

Roberval.

The private seaplane anchorage here is owned by Canadian Airways (Ldt), 190 St James Street, Montreal, Quebec It is located on the west shore of Lake St John, at 48° 32′ north and 72° 13′ west, altitude, 350 feet above sea level

The anchorage is identified by the standard markings consisting of an equilateral triangle with 15-foot sides and 2½-foot band with a cross. Lake St John which serves as a landing area for seaplanes, is approximately 20 by 30 miles in area Facilities are limited, and pilots should communicate with the owners before proceeding to the anchorage

St Felicien.

The Curtiss Reid Aircraft Co, Post Office Box 2407, Montreal, Quebec, owns and operates a public seaplane port here at 48° 40′ north and 72° 27′ west, altitude, 362 feet above sea level The local position of the port may be described as on the Ashuapmouchouan River, about one-half mile from the center of the village of St Felicien and about 10 miles from Lake St John (following the river course), into which this river empties St Felicien is on the line of the Canadian National Railway from Chambord to Dolbeau

Identification markings consist of the standard equilateral triangle with 25-foot sides and 4-foot band The provincial highway passes the port, and a wooden-covered bridge may be seen to the north The surrounding country is cultivated and contains a few scattered trees and farm houses Seaplane landings are effected in the Ashuapmouchouan River, which has good depth and a velocity of 1½ to 2 miles per hour

There is a cone-type wind indicator and a flagstaff Refueling facilities are furnished from a floating wharf securely moored 30 feet offshore, with a gasoline line from an underground tank There are mooring facilities Three conical buoys are one-quarter mile upstream from the wharf for the company seaplanes, and three buoys are one-quarter mile downstream for visiting aircraft There is a clubhouse with bedroom, lounge room, toilets, baths, kitchen, office, and complete first-aid kit

Prevailing winds are northwest

Temiscouata

A private seaplane anchorage of the Compagnie Aerienne Franco-Canadienne, 266 St James Street, Montreal, Quebec, is located on the south side of the Lower St Lawrence, on Temiscouata Lake in the district of the same name Its geographic position is 47° 37′ north and 68° 37′ west, altitude, 482 feet

Identification markings are a standard equilateral triangle with 15-foot sides and 2½-foot band with a cross Seaplane landings are made in Temiscouata Lake, which is 3 by 25 miles Facilities are limited, and pilots should communicate with the owners of the anchorage before proceeding

Three Rivers (Trois Rivieres)

There is a public seaplane anchorage at Three Rivers (north side of St Lawrence River, just below Lake St Peter), owned by Canadian Airways, Keefer Building, Montreal, Quebec The station is on the west side of the city, at 46° 19′ north and 72° 33′ west, altitude, tidewater elevation

Standard markings, consisting of an equilateral triangle with 15-foot sides and 2½-foot band with bar, identify the anchorage An area about 2 by 25 miles in the St Lawrence River is available for seaplane landings

SASKATCHEWAN

Emma Lake.

A public seaplane anchorage at Emma Lake (just east of southeast corner of Prince Albert National Park in northern Saskatchewan) is owned by Western Canada Airways (Ltd), 804 Trust and Loan Building, Winnepeg, Manitoba The anchorage is one mile northwest of Christopher Lake (which is north from Prince Albert City approximately 30 air-line miles), at 53° 35′ north and 105° 54′ west, altitude, 1,600 feet above sea level

The usual markings—an equilateral triangle with 15-foot sides and 2½-foot band—identify the anchorage The seaplane landing area measures 2 by 6 miles of sheltered water There is an island on the west side of the anchorage, and the surrounding country is low and wooded

Housing accommodations consist of one double-nose hangar Repair services, fuel, lubricating oil, and water are available A supply of 2,000 gallons of aviation gasoline and 160 gallons of lubricating oil is maintained and refueling is accomplished by means of hand pumps The nearest shipping point is Prince Albert, about 30 air-line miles south from the anchorage Western Canada Airways maintains quarters for its crews

Weather reports are available at the Forest Ranger's office at Prince Albert (on the Canadian National Railway and Saskatchewan River).

Lake Waskesiu

The National Parks Branch of the City of Prince Albert, Saskatchewan, owns a public seaplane port on Lake Waskesiu (north-central part of Prince Albert National Park), whose west and east limits are marked by 54° north latitude and 106° 3′ west longitude; altitude, 1,740 feet above sea level Lake Waskesiu is located about 56 air-line miles north-northwest of Prince Albert

Markings, consisting of the standard equilateral triangle with 25-foot sides and 4-foot band, identify the port Camps and summer cottages, as well as the buildings belonging to the Consolidated Mining & Smelting Co , are visible by day The surrounding country is rolling the total area of Lake Waskesiu is suitable for seaplane landings, but port comprises only a portion of the lake, measuring 3 miles square

A wind-direction indicator has been placed in the bay Although no hangars have been provided, fuel and oil are available from the cache of the Royal Canadian Air Force The port is used as a base for flying to Lac la Ronge (nearly 90 air-line miles north-northeast from Lake Waskesiu) Tents provide the chief accommodations for passengers and crews

It is 70 road miles to Prince Albert, the nearest railway station, but a Government wireless station is located at Waskesiu The nearest medical assistance is at Prince Albert

Summer flying time is from May 31 to October 31

Moose Jaw.

A public customs airport, owned by the city of Moose Jaw (southern Saskatchewan, on Canadian National and Canadian Pacific Railways, about 40 air-line miles west of Regina), lies northwest of the city at about 50° 25′ north and 105° 35′ west; altitude, 1,800 feet above sea level

The field is identified by a standard 100-foot circle with 4-foot band An elevated water tank, about 40 feet south of the hangar, and a railway on the west side of the airport are prominent landmarks The surrounding country is level and open, and the total area of the field, 2,500 feet square, is available for landing purposes.

Airport accommodations include a hangar with 2 500 square feet of floor space, and a heated repair shop with mechanical equipment Refueling facilities are available at the field, and customs services may be obtained on notification of the officials at the customhouse. Roads to the city of Moose Jaw are paved

Regina

Municipal Public Airport—Three-quarters of a mile south of the Parliament Buildings at Regina is a public customs airport, owned by the city of Regina Its geographic position is 50° 28′ north and 104° 40′ west; altitude, 1,896 feet above sea level

Identification markings consist of the standard 100-foot circle with 4-foot band Telephone poles 25 feet high form obstructions on the north, east, and southeast sides of the airport, on the southeast side are also farm buildings surrounded by trees 20 feet high; on the south side is a fence 3½ feet high Slightly rolling prairie lies to the east, west, and south, and the city of Regina to the north The total area of the field is available for landing purposes, the surface being of prairie sod over a clay subsoil

Runways from 300 to 4,800 feet long and 300 to 400 feet wide have been graded and will be paved Beacon lights are fixed A complete workshop and service station and good hangars were to be added early in 1930

Motor transportation is available to Regina; it is 1,500 feet to the nearest street-car stop Customs facilities are available on notification of the officials at the customhouse

Prevailing winds are west and northwest

Universal Air Industries (*Private Airport*) —A private airport of Universal Air Industries, Suite 4, Black Block, Regina, Saskatchewan is located at 50° 25′ north and 104° 38′ west, altitude 1,936 feet above sea level

Standard markings, consisting of a 100-foot circle with 4-foot band, encircling a Greek cross with 20-foot arms, identify the field. An east-west runway is 2,640 feet long and a north-south runway is 2,600 feet in length Facilities are limited, and pilots should communicate with the owners before proceeding to this airport.

Saskatoon

A public airport, owned by the city of Saskatoon, lies 1½ miles north of the city limits and about 1¾ miles northwest of the South

Saskatchewan River The geographic position is 52° 11′ north and 106° 41′ west, altitude, 1,600 feet above sea level, local magnetic variation, 23° east

A standard 100-foot circle with 4-foot band identifies the field A prominent landmark is the Robin Hood Mills, about 2¼ miles southeast of the airport, which may also be identified at night by an electric sign The only obstructions on the north, south, and west sides are scattered clumps of poplar trees, on the east side is a telephone line about one-half mile from the field The surface of the landing area is fairly level, seeded, and with subsoil of gravel There is an east-west runway 1,760 feet long, and a north-south runway 2,640 feet in length

A wind indicator has been placed on the filling station of the Imperial Oil Co A hangar, 28 by 46 feet, is the property of the Saskatoon Flying Club Minor repair services and refueling facilities are available, but there is no fresh water The main road from Saskatoon runs along the east boundary of the airport, and transportation is available to the city Provisions may be obtained at a store across the road from the airport, where a telephone is also available

Grading, lighting, and other improvements, to cost $23,000, are planned for 1930

Yorkton

A small field is owned by D Brown of Yorkton The town is located northeast of Regina approximately 110 air-line miles, at crossing point of Canadian National and Canadian Pacific Railways, or, about 51° 13′ north and 102° 28′ west

YUKON TERRITORY AND HUDSON STRAIT

Dawson (Yukon Territory).

The landing field here is situated in the valley of the Klondike River, above the mouth of Bonanza Creek (just south of Dawson City, which is 64° 5′ north and 139° 20′ west) The field is 1,600 feet long and has a runway about 300 feet wide It is used by commercial airplane operators A sand bar is used in winter

Mayo Landing (Yukon Territory)

The landing field, which is unlicensed, is situated on the Stewart River at the mouth of Mayo Brook, approximately 114 air-line miles east-southeast from Dawson City, or about 63° 40′ north and 135° 45′ west It is a 4-way field with a good, hard surface, 700 feet wide by 1,900 feet long There is also a good, hard, straight stretch of river beach three-quarters of a mile long, which is usable after July 15 when the high-water season is past The Stewart River in front of Mayo and many lakes in the vicinity are suitable for seaplane landings

Whitehorse (Yukon Territory)

The field is at the northern terminal of the White Pass & Yukon Railway, approximately 60° 50′ north and 135° west

A usable portion of this field has been surfaced, and it has a permanent hangar Further development is in progress, as the field is used by commercial airplane operators There is a supply of aviation fuel, but it is advisable to make arrangements in advance Suitable seaplane landing areas are on Bennett, Tagish, and Atlin

Lakes, all more or less within British Columbia—the nearest, Lake Bennett, being approximately 44 air-line miles south of Whitehorse All these lakes drain eventually into the Yukon River by way of Lewes River, as does La Berge Lake, which is 20 air-line miles north of Whitehorse

Hudson Strait

The Dominion Government has established three aviation stations on or near the south shores of Hudson Strait, to report on ice and weather conditions

The eastern station is at Port Burwell, on the western side of the main island on the south shore of the eastern entrance to the Strait, or, at 60° 22′ north and 64° 50′ west

The western station is on the southwest point of Nottingham Island, where Hudson Bay enters the Strait and about 30 miles north of Digges Island on the south shore of the Strait, or, at about 63° 5′ north and 77° 40′ west

The third station is at Wakeham Bay, on the south shore of the Strait about midway between the other two stations, or, at 61° 40′ north and 72° 5′ west

Hangars have been built, and wireless equipment is available At present there are no planes in the region

AIRPORTS IN NEWFOUNDLAND

Harbour Grace.

Harbour Grace is a village on the north side of a small inlet (4 miles long) on the southwest side of Conception Bay, about 30 air-line miles west-northwest of St John The entrance to the inlet from the bay is marked by Harbour Grace Island, on which there is a lighthouse flashing light 138 feet above high water The exact position of this lighthouse is 47° 42′ 45″ north and 53° 8′ 11″ west The Harbour Grace harbor beacon is a fixed red light at an elevation of 40 feet above high water and its exact position is 47° 4′ 29″ north and 53° 12′ 22″ west These lights are northeast and north, respectively, of the landing field

The airport is controlled by the Harbour Grace Airport Association The field, which has an altitude of 306 feet above sea level (including the elevation of the runway), is 250 feet wide from north to south and 3,850 feet long from east to west, sloping toward the east Planes generally take off from west to east The surface is fairly good, although there is some exposed rock North of the field is a branch line of railway, south of the field is the village of Harbour Grace, and at the west end of the field is a cemetery

The Harbour Grace field is claimed to be the only one in Newfoundland suitable for landings of trans-Atlantic planes The runway is 4,000 by 200 feet and has a 3 per cent grade On the left is the historic harbor 5 miles long and 1 mile wide, on the right a lake 2 miles long The runway is finished with a hard surface sand, but in time it will be covered with grass or clover Fliers are constantly using the port to arrange their equipment sent there in advance, since accessories are not available at present

On account of the heavy grade, planes leave the field in a westward direction, which is quite difficult in an easterly wind American and British weather reports are supplied by the Western Union Telegraph and Cable Co

EXCERPTS FROM CANADIAN AIR REGULATIONS, 1920

(Revised to December 31, 1927)

Part VII—RULES OF THE AIR

63 Flying machines shall always give way to balloons, fixed or free, and to airships Airships shall always give way to balloons, whether fixed or free

64 An airship, when not under its own control, shall be classed as a free balloon

65 Risk of collision can, when circumstances permit, be ascertained by carefully watching the compass bearing and angle of elevation of an approaching aircraft If neither the bearing nor the angle of elevation appreciably change, such risk shall be deemed to exist

66 The term "risk of collision" shall include risk of injury due to undue proximity of other aircraft Every aircraft that is required by these rules to give way to another to avoid collision shall keep a safe distance, having regard to the circumstances of the case

67 While observing the rules regarding risk of collision contained in the last preceding paragraph, a motor-driven aircraft must always manoeuvre according to the rules contained in the following paragraphs as soon as it is apparent that, if it pursued its course, it would pass at a distance of less than 200 yards from any part of another aircraft

68 When two motor-driven aircraft are meeting end on, or nearly end on, each shall alter its course to the right

69 When the two motor-driven aircraft are on courses which cross, the aircraft which has the other on its own right side shall keep out of the way of the other

70 (1) An aircraft overtaking any other, shall keep out of the way of the overtaken aircraft by altering its own course to the right, and not in the vertical plane

(2) Every aircraft coming up with another aircraft from any direction more than 110° from ahead of the latter, i e, in such a position with reference to the aircraft which it is overtaking that at night it would be unable to see either of that aircraft's sidelights, shall be deemed to be an overtaking aircraft, and no subsequent alteration of the bearing between the two aircraft shall make the overtaking aircraft a crossing aircraft within the meaning of these rules, or relieve it of the duty of keeping clear of the overtaken aircraft until it is finally past and clear

(3) As by day the overtaking aircraft can not always know with certainty whether it is forward or abaft this direction from the other aircraft, it should, if in doubt, assume that it is an overtaking aircraft and keep out of the way

71 Where by any of these rules one of the two aircraft is to keep out of the way, the other shall keep its course and speed When in consequence of thick weather or other causes, the aircraft having the right of way finds itself so close that collision can not be avoided by the action of the giving-way aircraft alone, it shall take such action as will best aid to avert collision

72 Every aircraft which is directed by these rules to keep out of the way of another aircraft shall, if the circumstances of the case admit, avoid crossing ahead of the other

73 In following an officially recognized air route every aircraft, when it is safe and practicable, shall keep to the right side of such route

74 Aircraft on land or water about to take off shall not attempt to take off until there is no risk of collision with alighting aircraft

75 Every aircraft manoeuvering under its own power on the water shall conform to the Regulations for Preventing Collisions at Sea, and for the purpose of those regulations shall be deemed to be a steam vessel, but shall carry the lights specified in these rules, and not those specified for steam vessels in those regulations and shall not use, except when in distress, fog, mist, falling snow or heavy rainstorm, or be deemed to hear, the sound signals specified therein

76 Every aircraft in a cloud, fog, mist, or other conditions of bad visibility shall proceed with caution, having careful regard to the existing circumstances and conditions

Part VIII—TRAFFIC IN THE VICINITY OF LICENSED AIRPORTS AND SEAPLANE STATIONS

77 A flying machine alighting or taking off at a licensed airport shall conform to the circuit indicated by the flag or light shown

78 When a flying machine takes off from a licensed airport it shall not turn until 550 yards distant from the nearest point of the airport, and the turning then made must conform with the circuit regulation

79 A flying machine alighting at a licensed airport shall, from a distance of at least 550 yards from the leeward side of the alighting zone, maintain a course directly toward such zone

80 All flying machines flying within 1,200 yards horizontal distance from the nearest point of a licensed airport shall conform to the circuit law, unless such flying machines are flying at a greater height than 6,000 feet

81 Acrobatic alightings are prohibited at licensed airports Flying machines are prohibited from indulging in aerial acrobatics within a distance in any direction of at least 6,000 feet from the nearest point of the airport

82 Every flying machine when taking off or alighting at a licensed airport shall do so upwind, except when the natural conditions of the airport do not permit

83 At a licensed airport every flying machine shall commence to take off from the extreme leeward point of the taking-off zone

84 In the case of flying machines approaching a licensed airport for the purpose of alighting, the flying machine flying at the greater height shall be responsible for avoiding the flying machine at the lower height, and shall, as regards alighting, observe the rules governing overtaking aircraft

85 Flying machines showing signals of distress shall be given free way in attempting to alight at a licensed airport

86 A flying machine when alighting at a licensed airport should alight as near as possible to the neutral zone, but in any case on the left of any flying machines which have already alighted After slowing up or coming to a stop at the end of its alighting run a flying machine will immediately taxi into the neutral zone Similarly, a flying machine taking off shall keep as far as possible toward the right of the taking-off zone, but shall keep clear to the left of any flying machines which are taking off or about to take off

87 No flying machine shall be allowed to remain in the alighting or the taking-off zone longer than is necessary for the purpose of alighting or taking off

88 No flying machine shall commence to take off until the preceding flying machine is clear of the airport

89 No balloon, kite or airship shall be elevated in the vicinity of a licensed airport except when authorized by regulation or with the permission of the Air Board

90 The rules governing traffic on and in the vicinity of licensed airports shall apply to traffic in the vicinity of licensed seaplane stations, with the following modifications and addition

(*a*) The following rules governing traffic in the vicinity of licensed airports shall not apply —Paragraphs 78 (flying machines not turning until 550 yards distant), (flying machines alighting to maintain a direct course from 550 yards distance), 82 (flying machines within certain limits conforming to circuit law), 86 (flying machines landing near neutral zone and moving into such zone), 88 (flying machines not commencing to take off till preceding flying machine is clear)

(*b*) A flying machine taxying up-wind at a licensed seaplane station shall give way to a seaplane taxying down-wind

91 A copy of this part shall be posted at every licensed airport and seaplane station

Part IX—DANGEROUS FLYING

92 No aircraft shall fly over any city or town except at such an altitude as will enable the aircrft to alight outside the city or town, should the means of propulsion fail through mechanical breakdown or other cause

93 No person in any aircraft shall—

(*a*) Carry out any trick flying over any city or town aera or populous district, or (*b*) Carry out any trick flying or exhibition flying over any regatta, race meeting, or meeting for public games or sports, except when especially arranged for in writing by the promoters of such regatta or meeting, or

(*c*) Carry out any flying which, reason of low altitude or proximity to persons or dwellings, is dangerous to public safety, or

(*d*) Drop or cause or permit to be dropped from an aircraft any article capable of causing injury or damage, or any ballast except water or fine sand

(*e*) No pilot of any flying machine shall, unless he is alone therein, permit or cause such flying machine to roll, spin, loop, or execute any other evolution involving unnecessary risk

(*f*) No person shall enter or attempt to enter any aircraft in flight or leave or attempt to leave any aircraft in flight except for the purpose of making a parachute descent, or give upon any aircraft in flight, any gymnastic or other like exhibition

EXCERPTS FROM CANADIAN QUARANTINE REGULATIONS

Sec 83 Aircraft arriving in Canada from foreign or overseas countries, subject to the same exemptions as are set forth in section 13 of these regulations regarding ocean-going vessels, are required to undergo quarantine inspection on arrival, before being allowed to make customs entry

Sec 84 All aircraft arriving in Canada from ports or places infected with quarantinable disease are required at time of quarantine inspection to present bills of health in accordance with the requirements of section 10 of these regulations

RECIPROCAL AGREEMENT BETWEEN CANADA AND THE UNITED STATES CONCERNING ENTRY AND CLEARANCE OF AIRCRAFT

Article 1 All state aircraft, other than military, naval, customs and police aircraft, shall be treated as civil aircraft and as such shall be subject to the requirements hereinafter provided for civil aircraft

Art 2 Subject to the conditions and limitations hereinafter contained and set forth, Canadian civil aircraft shall be permitted to operate in the United States and, in like manner, civil aircraft of the United States shall be permitted to operate in the Dominion of Canada

Art 3 Canadian aircraft, before entering the United States must be registered and passed as airworthy by the Canadian Department of National Defence and must bear the registration markings allotted to it by that Department. Aircraft of the United States, before entering Canada, must be registered and passed as airworthy by the United States Department of Commerce, and must bear the registration markings allotted to it by that Department preceded by the letter "N" placed on it in accordance with the Air Commerce Regulations of the Department of Commerce

Art 4 Canadian aircraft making flights into the United States must carry aircraft, engine and journey log books, and the certificates of registration and airworthiness, issued by the Canadian Department of National Defence The pilots shall bear licenses issued by said Department of National Defence. Like requirements shall be applicable in Canada with respect to aircraft of the United States and American pilots making flights into Canada The certificates and licenses in the latter case shall be those issued by the United States Department of Commerce, provided, however, that pilots who are nationals of the one country shall be licensed by the other country under the following conditions

(*a*) The Department of National Defence of the Dominion of Canada will issue pilots' licenses to American nationals upon a showing that they are qualified under the regulations of that Department covering the licensing of pilots, and the United States Department of Commerce will issue pilots' licenses to Canadian nationals upon a showing that they are qualified under the regulations of that Department covering the licensing of pilots

(*b*) Pilots' licenses issued by the United States Department of Commerce to Canadian nationals shall entitle them to the same privileges as are granted by pilots' licenses issued to American nationals, and pilots' licenses issued by the Department of National Defence of the Dominion of Canada to American nationals shall entitle them to the same privileges as are granted by pilots' licenses issued to Canadian nationals

(*c*) Pilots' licenses granted to nationals of the one country by the other country shall not be construed to accord to them the right to register aircraft in such other country

(*d*) Pilots' licenses granted to nationals of the one country by the other country shall not be construed to accord to them the right to operate aircraft in air commerce unless the aircraft is registered in such other country in accordance with its registration requirements, except as provided for in paragraphs (*a*) and (*b*) of clause 6, with respect to discharging and taking on through passengers and/or cargo

Art 5 No Canadian aircraft in which photographic apparatus has been installed shall be permitted to operate in the United States, nor shall any photographs be taken from Canadian aircraft while operating in or over the United States territory, except in cases where the entrance of such aircraft or the taking of photographs is specifically authorized by the Department of Commerce of the United States Like restrictions shall be applicable to aircraft of the United States desiring to operate in or over Canadian territory, and in such cases the entrance of aircraft in which photographic apparatus has been installed, and the taking of photographs, shall not be permissible without the specific authorization of the Department of National Defence of Canada

Art 6 (*a*) If the Canadian aircraft and pilot are licensed to carry passengers and/or cargo in the Dominion of Canada, they may do so between Canada and the United States, but not between points in the United States, except that, subject to compliance with customs, quarantine and immigration requirements, such aircraft shall be permitted to discharge through passengers and/or cargo destined to the United States at one airport in the United States according landing facilities to foreign aircraft, and to proceed with the remaining passengers and/or cargo to any other airports in the United States according landing facilities to foreign aircraft, for the purpose of discharging the remaining passengers and/or cargo, and they shall in like manner be permitted to take on passengers and/or cargo destined to Canada at different airports in the United States on the return trip to Canada

(*b*) If the United States aircraft and pilot are licensed to carry passengers and/or cargo in the United States, they may do so between the United States and Canada, but not between points in Canada, except that, subject to compliance with customs, quarantine and immigration requirements, such aircraft shall be permitted to discharge through passengers and/or cargo destined to Canada at one airport in Canada according landing facilities to foreign aircraft, and to proceed with the remaining passengers and/or cargo to any other airports in Canada according landing facilities to foreign aircraft, for the purpose of discharging the remaining passengers and/or cargo, and they shall in like manner be permitted to take on passengers and/or cargo destined to the United States at different airports in Canada on the return trip to the United States

Art 7 The right accorded to Canadian pilots and aircraft to make flights over United States territory under the conditions provided for in the present arrangement shall be accorded, subject to compliance with the laws, rules, and regulations in effect in the United States governing the operation of civil aircraft The right accorded to American pilots, and aircraft of the United States to make flights over Canadian territory, under the conditions herein provided for, shall be accorded, subject to compliance with the laws, rules, and regulations in effect in Canada governing the operation of civil aircraft

[Article 8 of the agreement, relating to certificates of airworthiness for export, and article 9, providing for termination of the agreement upon notification, are omitted]

CANADIAN OFFICIALS IN CHARGE OF CIVIL AERONAUTICS

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Mr J A Wilson, Controller of Civil Aviation, Department of National Defence, Ottawa, Ontario, Canada

Group Captain E W Stedman, Chief Aeronautical Engineer, Department of National Defence, Ottawa, Ontario, Canada

SELECTED READING LIST ON CANADIAN CLIMATE

The Canada Yearbook Dominion Bureau of Statistics, Ottawa (The successive years contain valuable details on weather conditions)

Dowling, D B The Southern Plains of Alberta Bull 78, Geological Series, Geological Survey, Ottawa, 1917

Dowling, D B Coal Fields of Manitoba, Saskatchewan, Alberta, and Eastern British Columbia Bull 44, Geological Series, Geological Survey, Ottawa, 1914 (Contains good discussion of topography)

Monthly Record of Meteorological Observations in the Dominion of Canada and the Colonies of Bermuda and Newfoundland Meteorological Service of Canada, Ottawa

Climate of British Columbia, Report for 1928 British Columbia Department of Agriculture, Victoria, British Columbia, 1929 (Contains also some averages covering periods of years)

Connor, A J The Temperature and Precipitation of Alberta, Saskatchewan, and Manitoba Meteorological Service of Canada, Ottawa, 1920

Current reports may be had on request to the reporting offices

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MARKET FOR INDUSTRIAL MACHINERY IN BRITISH SOUTH AFRICA

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FOREWORD

British South Africa has long been known to the American exporter of mining machinery, for this type of equipment has for many years found an important outlet in this market. The mining industry, although practically all British-owned and controlled, has, from its inception, been influenced by American mining practice through the employment of American engineers and executives in the principal mining districts, particularly during their developmental stages. Furthermore a similarity between American and South African mining and ore-reduction problems has led to the adoption of standard mining machinery developed by American manufacturers for conditions on the western continents.

But South Africa offers much more than an outlet for American mining machinery. Based upon official United States statistics, American manufacturers supplied the following in 1929: Metal-working machinery, $350,000, well and oil-refinery machinery, $240,000, construction machinery, $166,000, power pumps, $109,000, conveying machinery, $104,000. This does not include a considerable transshipment trade through Beira, Portuguese East Africa, in equipment destined for the Rhodesias.

This bulletin endeavors to describe the South African market for industrial machinery and to indicate the present and potential market for American products. A number of interesting phases are discussed, such as the importance of the Johannesburg Commercial Exchange in effecting machinery sales. American exporters desiring further information pertaining to the market in South Africa and other foreign countries are requested to communicate with the industrial machinery division of this bureau.

WILLIAM L. COOPER, *Director*
Bureau of Foreign and Domestic Commerce

SEPTEMBER, 1930.

MARKET FOR INDUSTRIAL MACHINERY IN BRITISH SOUTH AFRICA

By Samuel H Day, American Trade Commissioner, Johannesburg

INTRODUCTION

Imports of mining and industrial machinery into the Union of South Africa during 1929 were valued at £2,974,000, which was practically the same as in 1928 Shipments of the same classes of machinery during 1927 reached a total of £2,712,671, and for the previous year an aggregate value of £2,106,509 Manufacturers in the United Kingdom supplied £1,743,000 worth or 59 per cent of the total during 1929, followed by the United States with £809,000 worth or 27 per cent During 1928 the United Kingdom secured 62 per cent of this trade as against 26 per cent on the part of the United States

Imports of industrial machinery into other sections of British South Africa gained sharply in 1929 as compared with the trade of the previous year These shipments were as follows

Territory	1928	1929
South Rhodesia	£378,953	£511 976
Northern Rhodesia	161,620	371,543
Southwest Africa	58,750	82,248
Total	599,323	968,767

American machinery for mining and allied operations has long found an important outlet in South Africa The market must be taken primarily as a field for this class of equipment The mining industry, although practically all British owned and controlled, has been subject to American influence from its inception, through the employment of American engineers and executives in the principal mining districts, particularly during their development stages Furthermore, a similarity between American and South African mining and ore-reduction problems has lead to the adoption of standard mining machinery and equipment developed by American manufacturers for conditions on the western continents

Apart from mining, South Africa is the world's newest industrial country It is not generally recognized that the real development of machinery-using industries dates back less than 20 years In comparison with modern industrial nations South Africa is, therefore, in its infancy The country's basic needs in manufactured articles are being gradually taken care of by local production and a wide range of secondary industrial enterprises established and fostered under strong governmental encouragement

The first industrial census taken in 1915–16 showed that there were 3,999 factories in operation, the gross output of which was valued at £90,435,000 In 1920–21 the number of industrial establishments had risen to 7,005 with an output of £98,308,000 The deflation period which followed marked a decline, but the upward trend was immediately resumed and in 1925–26, the date of the latest census, the total production of the country was valued at £91,536,926, with 200,000 persons employed, 75,000 of whom were Europeans

With respect to the products covered in this bulletin, electrical machinery, prime movers, locomotives (railway and industrial), and anything in the nature of garage equipment sold ordinarily through manufacturers' agents and jobbing houses catering to the automotive trade are excluded No attempt will be made to discuss the market for machinery that may be classed as agricultural implements or farm appliances

SALES AREA AND POPULATION

From the point of view of the supplier of machinery there is a certain logical grouping of territory in southern Africa, which may ordinarily be taken as suitable for allotment to one established machinery-importing house acting through its branches or agency connections This territory includes the Union of South Africa with its mandate (former German Southwest Africa), Portuguese East Africa, Northern and Southern Rhodesia and the Katanga district of the Belgian Congo. The discussion in this bulletin will be confined to this region

Although the region covered is considerably over half the size of continental United States, the European or white population of the territory under review is extremely small, this being the principal limiting factor as regards the development of industries manufacturing products for consumption locally by the white residents

The predominance of non-European labor (mostly black African) in most of South Africa's industries is a factor which has an important bearing both on types of equipment used and methods of manufacture

With present average factory capacities it is often not economically feasible to replace hand operation by machinery On the other hand, the growing industrialization of the native Kaffir is bringing with it certain economic and social problems which may be solved only by greater mechanization of industry and release of the natives for agricultural work Included with the Kaffir workers are a fair proportion of Asiatics, mostly Indians, the latter being capable of much greater development as skilled workmen

There is practically no opportunity in South Africa for mass production in the American sense, with consequently very limited demand for machinery designed solely to speed up output and reduce the number of operatives. The availability of cheap native hand labor for industries eliminates the opportunity for many types of industrial machinery that operate in other countries to replace manual labor On the other hand, the large number of natives finding employment on mines, farms, and factories results in their having a relatively high purchasing power, which is reflected in the demand for modern machinery as well as other products

The size and population of the political subdivision of the territory covered are as follows

Territory	Area, in square miles	Population (estimated 1928)			
		European	Native	Indian and mixed	Total
Union of South Africa	471,917	1,738,900	5,277,000	761,600	7,777,500
Southwest Africa	322,393	25,000	210,000	200	235,200
Portuguese East Africa	428,132	30,000	4,000,000	5,000	4,035,000
Southern Rhodesia	148,575	44,800	964,900	3,800	1,103,500
Northern Rhodesia	291,000	5,000	1,000,000	300	1,005,300
Katanga	100,000	6,000	200,000	1,000	207,000
Total	1,762,017	1,849,700	11,651,900	771,900	14,363,500

INDUSTRIES USING MACHINERY

The mining area of South Africa is primarily a region having within its borders the famous Witwatersrand gold fields, the Kimberley and other diamond mines, the gold, chrome, and asbestos deposits of the Great Dyke of Southern Rhodesia, and the copper districts of Northern Rhodesia and the Belgian Congo Over 52 per cent of the world's gold production and about 90 per cent of the diamonds are won from this area It seems destined to become one of the world's major copper-producing regions, and in respect of chrome and asbestos, its mines are already important factors in the world's supply There are enormous and easily accessible fields of coal and almost unlimited quantities of iron ore

In mining operations a large amount of native hand labor is employed This is the principal difference between the working conditions in South Africa and most American mining districts Here the white man is more of a skilled overseer, while the Kaffir "boys" do the physical work Modern machinery, however, especially in the large-scale operations on the Rand and elsewhere, plays an essential part and is becoming increasingly important with the growing depth of the underground workings and the gradual shortage of the native labor supply American machinery is everywhere in evidence both in actual mining and ore reduction It is for mining machinery that the greatest potential demand exists

Other primary industries include production of sugar from cane, which is centered in Natal Province, with grinding and refining plants treating at the present time about 3,000,000 tons of cane per annum Other industries are fruit drying and preserving, wine manufacture, whaling, and fish canning

The industrial development covers a wide range of secondary products made for local consumption and for export to neighboring markets in Africa The following is a list grouped under a broad classification in the order of their importance:

	Number of factories		Number of factories
Food, drink, etc	1,868	Leather and leatherware	228
Metals and engineering	877	Furniture	206
Vehicles	858	Chemicals	125
Clothing and textiles	802	Production of raw materials	116
Building	763	Jewelry, etc	44
Stone, clay, etc	340	Unspecified	39
Books and printing	318	Surgical instruments	23
Heat, light, and power	257	Shipbuilding	11
Woodworking	237		

The food and drink industry, which constitutes the largest single group, includes flour and meal milling, starch, sugar, butter, cheese, bacon and ham, condensed milk, bread, biscuits, jam, canned and dried fruits, confectionery, pickles, sauces and vinegar, macaroni, cereal foods, and all kinds of aerated waters, cordials, beer, wines and spirits, salt, tobacco, cigars, cigarettes, and snuff

The metal and engineering class is made up of plants catering to the mining and other industries, Government and municipal workshops, railway repair stations, etc This industry is located principally in Johannesburg and on the "Reef," as the gold-bearing area of Johannesburg and vicinity is called

Vehicle building has always been an industry of considerable importance in South Africa, where the ox-drawn wagon is still a factor in the transport of goods Since the advent of motor transportation, body building has made rapid strides and the big motor-car assembly plants of two leading American manufacturers have brought the vehicle-building industry into a new phase of activity with a consequent high state of development

For its size, South Africa is well catered to in clothing manufacture, from good-grade tailoring to the ordinary ready-made garments, shirts, ties, hats, and waterproof and knitted clothing The manufacture of men's and women's hosiery has commenced as well as knitted outer wear of wool and cotton, and ribbed worsted bathing suits Blankets and rugs are also produced along with some mohair cloth for uniforms and sports wear

The stone and clay industry is mainly in the Transvaal and Natal Bricks, tile, pipes of cement and clay, crucibles, cement, and cut stone are the articles produced Allied to this industry are plants turning out asbestos, cement, asphalt, lime, glass bottles, graphite, talc, composite flooring, insulating material, etc

The heat, light, and power plants, with the exception of the Victoria Falls and Transvaal power stations, are all Government owned Electricity undertakings are under the supervision of the Electricity Supply Commission, which itself is empowered to construct plants and supply electric power under Government regulation

Woodworking, together with furniture making, is one of the country's leading industries All classes of furniture are produced, and the joinery plants, in addition to sash and doors, etc , are turning out picture frames, boxes, cooperage, cork work, shopfitting, and plywood

Boot and shoe and leather production have progressed steadily, especially since the war, until the class of men's, women's, and children's footwear compares favorably with that from older manufacturing countries All but the better grade of upper leathers are now produced locally The leather industry, in addition to shoes, includes harness making and saddlery, bags and trunks, leggings, and fancy goods

In the chemistry group important developments have been made, especially in the production of soap of all kinds, candles, oils and greases, disinfectants, polishing compounds, glycerin, perfumery, and a motor spirit from molasses Carbonic acid gas as well as oxygen and acetylene are made and stored in cylinders, and fertilizers and explosives are produced for the needs of agriculture and mining

Among the remaining industries may be mentioned wire nails, fencing, rope, cordage and twine, tents and tarpaulins, matting, paint, matches, baking powder, surgical instruments, jewelry, and rubber goods

An important factor in connection with the future of South Africa industrially is the State-fostered iron and steel works now in course of development It is planned to produce steel for supplying the raw or basic material to secondary industries whose output would replace steel products now being imported

GOVERNMENT AND INDUSTRY

Every possible encouragement is given to local industry by the South African Government The Board of Trade and Industries, which is the Government's tariff advisory body, gives sympathetic attention to any practical scheme for embarking upon local manufacture Since the upward revision of the tariff in 1925 there has been a steady increase in the importation of machinery and materials for manufacturing purposes The policy of protection is giving the industrialists of the country confidence in the future and the means for attracting the necessary capital for the development of industries

Machinery that can be used in any way for agricultural purposes—boilers, marine engines, water-filtering equipment, fixed plant and machinery for factory installation, wool presses, refrigerating machinery, pumps, traction engines, and water-boring apparatus—are all admitted free of duty On electric-generating machinery, apparatus, and appliances and on buckets, skips, trucks, and mine tubs a 5 per cent preference is given manufacturers in the United Kingdom Other mining and industrial machinery comes in with a 3 per cent preference to British manufactures Rock-drill spares and liners for tube mills, which are beginning to be produced locally, are protected by assessment of a 17 per cent duty when imported from the United Kingdom and 20 per cent when received from other countries The same applies to plates and frames for sugar filter presses

The machinery requirements of South Africa are generally all obtained from overseas Although the engineering shops, particularly on the Rand, are often called upon for the building of an important replacement part or even the duplication of simpler types of machinery, the demand in most cases does not warrant any sort of continuous production of mechanical equipment for use by local industry

MACHINERY IMPORTS

Machinery imports may be divided into two groups, those for private industry and Government purchases The latter cover not only the requirements of the Government departments but also the State-owned South African Railways and Harbors, the municipalities, the Electricity Supply Commission, and the South African Iron and Steel Industry Corporation Government purchases are to a large extent made on open tender, using the medium of the Johannesburg Commercial Exchange and the High Commissioner's office in London for bringing notice of these requirements to the attention of suppliers There is a tendency to favor local merchants by purchasing as much as possible from South African stocks It is also a fixed condition that oversea manufacturers desiring to tender must be represented in South Africa Ample time is generally given to enable local representatives of American principals to send specifications, etc, overseas and receive back quotations before the tender dates In the case of the new state iron and steel industry works, specifications were released simultaneously in Johannesburg, London, and New York, and every facility given to enable the competition to be world-wide

British manufacturers hold a commanding position in the South African trade in almost all classes of industrial machinery There are several reasons for this The South African of Dutch ancestry rarely goes in for manufacturing, leaving this branch of industry to his fellow countryman of British descent or to the newcomers, mainly Jewish The big industrialists of South Africa are practically all British with a strong preference for the machinery and methods of Great Britain Much of the financing of local industry is done in England under the auspices of British manufacturers of similar products, who naturally turn to the home market for plant equipment Several important American manufacturers supply the South African market from their English manufacturing branches so that this trade is credited to Great Britain Another factor is the limited scope in South Africa for mass production and labor-saving methods, with the result that British or continental types of industrial machines are ordinarily more suited to local requirements than those of American design, except, of course, for mining and farming operations Furthermore, there is a close business and financial association between the industrial element in South Africa and Great Britain with frequent personal contact during mutual visits, which naturally leads to a choice of British machinery and manufacturing equipment unless the United States or some other country can effectively offer something that is outstandingly more suitable

Considerations of price have an important bearing at the present time on the American participation in South Africa's machinery trade On most types of heavy machinery such as locomotives and turbo-generators, wherein labor enters to a considerable degree into the cost, prices on American products during the last two or three years have been hopelessly out of line with those of British and continental competitors The price factor applies more to private industry requirements than to railway and other Government purchases. With the exception of locomotives and machinery contracts running into large amounts, which are thrown open to general tender, the usual custom of the railways is to buy machinery privately from a manufacturer with whom they have had previous dealings The railway is extremely conservative in its policy and has adhered strongly to British makes of machinery

AIR COMPRESSORS

The air-compressor business in South Africa is at present largely in British hands An unusual development on the Rand consists of the compressed air service of the Victoria Falls & Transvaal Power Co While several of the mines have their own plants, the bulk of them are supplied with air from two main stations operated by this company, which has laid a 24-inch piping system along the Reef The service is metered on the basis of electrical units consumed

American air compressors are at work in many parts of this territory and are satisfactorily meeting the conditions The preponderance of British equipment is due simply to the preference situation above referred to

AIR-COMPRESSOR IMPORTS INTO THE UNION OF SOUTH AFRICA

Country	1926	1927	1928	1929
United Kingdom	£8, 493	£7, 046	£27, 905	£13, 573
United States	7, 611	12, 271	8, 850	9, 156
Germany	19	1, 242	7, 301	416
Other	24	716	899	2, 43
Total	16, 147	21, 275	44, 955	25, 578

BOILERS

British makers have practically a monopoly in supplying boilers to South Africa Fully 90 per cent of the water-tube type of capacity over 100 horsepower are by one concern Vertical cross tube and locomotive type boilers are also of English make A large number of boiler manufacturers are represented in South Africa, even though the business is in the hands of a few The absence of American participation in this trade is because of the prior establishment of the British product and the conservative attitude of most industrialists who have found British boilers satisfactory Cheap coal fuel is a factor which hinders the introduction of new type boilers and appliances designed for fuel economy The competitive situation is such that it is difficult to interest a reliable machinery dealer in any type or new make of boiler different from that now being supplied

IMPORTS OF BOILERS FOR INDUSTRIAL PURPOSES INTO THE UNION OF SOUTH AFRICA

Country	1926		1927		1928		1929	
	Number	Value	Number	Value	Number	Value	Number	Value
United Kingdom	1, 505	£131, 466	122	£64, 391	206	£60, 642	229	£93, 826
Germany	1	547	5	3, 721	--------	----------	5	217
United States	--------	45	6	1, 813	1	191	----- --	1, 166
Belgium	--------	146	10	1, 478	--------	77	--------	--- --- --
Other	1	260	--------	416	--------	339	--------	46
Total	1, 507	132, 464	143	71, 819	207	61, 249	234	95, 255

SHOE MACHINERY

Most of the shoe-machinery trade of South Africa is in the hands of the British subsidiary of an American firm Stocks are held in South Africa and the equipment leased to the factories in accordance with this company's established policy A few of the shoe machinery specialty lines are shipped direct from the United States

Imports of Boot and Shoe Making Machinery into the Union of South Africa

Country	1926	1927	1928	1929
United Kingdom	£27,408	£20,193	£20,868	£18,292
United States	5,392	4,313	3,363	4,502
Germany	2,031	649	780	1,679
Other	224	116	908	805
Total	35,055	25,271	25,919	25,278

CONFECTIONERY-MAKING MACHINERY

The important confectionery factories in South Africa are all offshoots of British concerns The machinery employed is accordingly of British manufacture, having been sent out by the parent companies in complete units Replacements and additions tend to follow the original equipment The varieties of confectionery favored in South Africa are more British than American, which places United States confectionery-machinery specialties at a disadvantage

Imports of Confectionery-Making Machinery into the Union of South Africa

Country	1926	1927	1928	1929
United Kingdom	£11,469	£12,567	£14,796	£8,225
Germany	1,461	2,541	4,024	3,357
United States	379	735	1,535	586
France	27	33	1,033	45
Other	92	311	687	972
Total	13,428	16,187	22,075	13,185

GRAIN-MILLING MACHINERY

A British firm is the chief supplier of machinery for South Africa's corn and flour mills The American equipment in use consists mainly of small units on farms and in small custom mills where the farmer brings in a few bags for grinding at a time German suppliers have a share of the latter trade The big milling interests of South Africa are all British, and orders for complete plant equipment are often placed in England without foreign competition

Imports of Corn and Flour Milling Machinery into the Union of South Africa

Country	1926	1927	1928	1929
United Kingdom	£52,465	£47,371	£58,952	£68,829
United States	2,113	4,035	7,505	10,749
Germany	1,004	2,287	1,090	4,318
Other	1,373	1,363	1,696	2,027
Total	56,955	55,056	69,243	85,923

CRANES AND ELEVATING MACHINERY

In cranes and elevating machinery 80 per cent of the demand is for Government requirements American grain-handling equipment is preferred throughout the railway elevator system The harbor cranes are all British A great deal of elevating of material on mine dumps is necessary in South Africa on account of the prevailing flatness of the country The opportunities for this line of machinery are good and the market worthy of careful study and consideration

IMPORTS OF CRANES AND ELEVATING MACHINERY INTO THE UNION OF SOUTH AFRICA

Country	1926	1927	1928	1929
United Kingdom	£102,729	£120,961	£63,353	£87,753
United States	16 429	19,644	25,287	29,615
Germany	707	2,434	1,376	2,616
Belgium	----------	667	1,217	3,023
Other	814	6,324	166	939
Total	120,679	150,030	91,401	123,946

FACTORY-PLANT EQUIPMENT

Under the general heading of "factory plant" equipment, South Africa imports annually a wide variety of machinery in the form of more or less complete manufacturing units for industrial establishments varying in size from small one-family affairs to important volume producers Examples are soap and candle making plants, match factories, baking powder, yeast, and all sorts of foodstuff plants which are starting up as new enterprises As previously mentioned, the present Union Government offers encouragement to new manufacturing industries in the form of tariff protection as well as customs exemptions on raw materials, and there is a large class of newcomers to South Africa who are anxious to embark on almost any kind of manufacturing American trade and technical journals are eagerly scanned for new mechanical appliances to simplify or cheapen the cost of manufacture of standard articles of consumption and the American Trade Commissioner's office is continually receiving inquiries for complete manufacturing equipment for given industries The American position in this trade is due to our ability to supply rapid-production equipment and machinery with adaptability to new manufacturing problems The feeling is that the promoters of a new enterprise must look to the United States for the latest and quickest methods or appliances, which gives American manufacturers an advantage over the firms in older countries supplying the standard and time-honored types This specialized machinery trade will undoubtedly continue to grow with the increasing diversity of South Africa's manufacturing enterprises

IMPORTS OF FACTORY-PLANT EQUIPMENT TO THE UNION OF SOUTH AFRICA

Country	1927	1928	1929
United States	£86,867	£80,920	£124,179
Germany	51,529	56,234	100,677
United Kingdom	67,412	43,602	45,853
Switzerland	6,807	12,464	7,874
Other	15 945	10,920	13,959
Total	228,560	204,140	292,542

METAL-WORKING MACHINERY

The South African Railways are the largest users of metal-working machinery British suppliers of lathes as well as other machine tools are well intrenched This railway business is conservatively placed, not ordinarily on the basis of price There is an increasing tendency for the South Africa Railways to standardize in its selection of machine-shop equipment

German machine-tool manufacturers are well represented in the Union, having come back strongly with consignment stocks, etc , since the war They are supplying many of the shapers, planers, and milling tools in the mine shops and offering credit terms to small engineering establishments to enable them to commence business with limited capital The United States participation in metal-working machinery is largely in garage equipment, small lathes, drills, valve seaters, etc

IMPORTS OF LATHES IN THE UNION OF SOUTH AFRICA

Country	1926	1927	1928	1929
United Kingdom	£21,312	£32,751	£52,043	£56,187
Germany	5,884	5,170	4,528	5,964
United States	3,862	2,602	2 271	2,724
Other	783	1,074	1,648	1,310
Total	31,841	41,597	60,490	66,185

There has grown up on the Rand a very extensive engineering industry or group of independent, private machine shops These establishments have developed on a jobbing basis and are organized to cope with breakdowns or other mining emergencies and to get plants moving again with the least possible delay The personnel is, accordingly, often highly skilled and ingenious and will undertake to duplicate a part or even a complete machine of considerable complexity They fabricate thousands of feet of steel launders for conveying mill pulp on the gold mines All sorts of plate work, tanks, chutes, etc , are turned out Some very fine gear cutting is occasionally done, as well as the production of runners for turbines and alloy and bronze work Precision grinding has developed in connection with automotive needs, and electric welding is common in most work shops The machine tools and metal-working machinery for all these operations are ordinarily bought on a price basis, a practice which has militated against United States manufacturers getting their share in recent years It is a trade worth cultivating, however, especially where American manufacturers can offer something more efficient or more suited to the varied requirements of this local industry

IMPORTS OF MACHINE TOOLS (EXCEPT LATHES) INTO THE UNION OF SOUTH AFRICA

Country	1926	1927	1928	1929
United Kingdom	£5,061	£10,975	£27,475	£23,740
United States	2,727	8,052	18,937	15,684
Germany	449	1,223	3,054	2,449
Sweden	114	443	1,852	1,092
Other	68	354	505	1,569
Total	8,419	21,047	51,823	44,534

ELEVATORS

The highest building in South Africa has 10 stories, the average modern structure possessing about 6 Up-to-date elevator equipment in the American sense is, therefore, not required The British branch of an American company has been getting most of this trade There is a growing demand for special garage elevators and equipment for cold-storage plants and specialized industrial lift requirements

HYDRAULIC AND ELECTRIC LIFT AND GATE IMPORTS INTO THE UNION OF SOUTH AFRICA

Country	1926	1927	1928	1929
United Kingdom	£37,460	£31,459	£36,439	£55,466
United States	1,741	5,413	1,807	11,213
Other	431	577	140	273
Total	39,632	37,449	38,386	66,952

MINING MACHINERY

The American share of South Africa's imports of mining machinery consists mainly of those mechanical specialties for which American manufacturers have established a world reputation on account of their efficiency of operation and suitability for the character of work to be performed The readiness of American manufacturers to redesign a machine and offer something new and better for a particular operation gives them an advantage over more conservative competitors

At the same time, firms representing American machinery manufacturers in South Africa find almost everywhere a strong British preference based on sentiment and on actual community of interest between British machinery manufacturers and the big mining groups of South Africa The mining industry is almost wholly British controlled, and it is well known that many of the mine managers are under instruction to buy from America only when the article in question is unobtainable from a British source

The fact that there is a considerable amount of American capital invested in mining enterprises in this part of Africa does not alter the competitive situation, nor the fact that there are American engineers and managers employed on a number of the mines, particularly at the present time in Northern Rhodesia The latter are in reality a handpicked group of experts imported into this country to carry out work for which they are known to be among the world's leading specialists Their outlook is international and their professional standards such that any leaning they might have toward American equipment would never be based on anything but its suitability for the work being carried out South Africa is a part of the British Empire, and the outstanding importance of its mining industry keeps this territory constantly considered as an outlet for British goods Furthermore, in the Rhodesias, all mining rights are obtained under concession from the British South Africa (or Chartered) Co , controlled from London, which exercises a powerful influence in the Rhodesias and strongly favors British Empire trade.

Gold mining —The Rand gold mines have developed to a high degree the technique of both mining and milling The standard ore treatment consists of primary breaking with crushers, reduction with stamps or ball mills or both, amalgamation over plates, further grinding with ball mills, followed by cyanide leaching The average loss going to the tailing dumps is less than 5 per cent of the gold content of ore milled

Underground the gold occurs in quartz-conglomerate reefs varying from 10 to 40 inches in width, the values persisting with remarkable uniformity in depth In the Village Deep Mine on the central Rand the 7,600 foot level has been reached Winding equipment is accordingly a matter of first importance Steam hoisting engines were first used but these are nearly all replaced by electric The winding gear itself on most of the Rand mines is manufactured by a British firm, but American electric motors are favored Wire cable is now manufactured in South Africa suitable for all haulage The tip trucks and buckets used for tramming ore underground are mainly British and German with continental participation in this line increasing Local fabrication of buckets or "tubs" as they are called, is also making rapid progress The employment of small winches or hoists operating scrapers for bringing broken ore down the stopes is a development for which American manufacturers are responsible This work is ordinarily done by native hand labor, and owing to the growing shortage of this labor supply, opportunities for economical mechanization are becoming more numerous In fact, the prodigious use of native hand labor, which has always been the rule in Rand mining practice, may have ultimately to give way to mechanical operation as the mines increase in depth

IMPORTS OF BUCKETS AND TIP TRUCKS INTO THE UNION OF SOUTH AFRICA

Country	1926	1927	1928	1929
United Kingdom	£58, 050	£58, 146	£48, 887	£51, 560
Germany	23, 738	23, 971	25, 070	25, 047
United States	295	9, 735	11, 271	1, 176
France	3, 790	6, 470	5, 638	5, 385
Belgium	341	1, 224	3, 659	2, 812
Netherlands	----------	2, 381	2, 880	5, 368
Other	1, 182	1, 567	921	1, 570
Total	87, 396	103, 494	98, 326	92, 918

Coal mining —Coal-mining machinery has an important place in the South African imports Coal cutters are used in the Natal and Transvaal mines, those of British make being at present in greatest favor In South Africa the practice of operating mining machines wherever possible by native labor, with the white miner in immediate supervision, is the custom This calls for special consideration to meet what might be called nonskilled actual handling of the equipment

Copper mining —The new copper-mining area of Northern Rhodesia is being prospected mainly with diamond drills, over 75 of them being now in operation The power and ore reduction plants, smelters, and main works are being designed in London, where practically all the big machinery will be purchased Suppliers are keeping in touch with this copper-mining development by sending engineers and executives to visit the district, by appointing local representatives, and by direct contact with the head offices of the companies concerned in London American equipment should have an important place in this district on account of the position of our machinery manufacturers in copper mines of the world generally The approach to this business through a manufacturing or selling branch in England would prove advantageous, although local representation in South Africa is necessary to a proper development of the ultimate possibilities of the market

IMPORTS OF OTHER MINING MACHINERY NOT ELSEWHERE SPECIFIED INTO THE UNION OF SOUTH AFRICA

Country	1926	1927	1928	1929
United Kingdom	£331,622	£535,760	£532,837	£470,675
United States	222,405	343,821	282,885	342,891
Germany	12,485	9,992	11,084	27,755
Other	37,433	20,875	8,425	15,533
Total	603,945	910,448	835,231	856,854

INTERNAL-COMBUSTION ENGINES

The British section of this trade is in the 1-cylinder, 4-cycle horizontal oil engine, with two manufacturers as the leading suppliers The American share consists of horizontal kerosene engines, with the Germans supplying the Diesels The cost of fuel is an important consideration in the sale of this equipment and has much to do with the preponderance of the British oil engines

IMPORTS OF OIL AND GASOLINE ENGINES INTO THE UNION OF SOUTH AFRICA

Country	1926		1927		1928		1929	
	Number	Value	Number	Value	Number	Value	Number	Value
United Kingdom	645	£46,336	923	£54,472	1,527	£96,863	1,828	£89,059
United States	289	11,646	414	15,140	872	28,141	591	16,896
Germany	11	732	58	4,515	133	11,549	231	14 629
Other	56	2,783	52	2,267	50	2,861	202	8,204
Total	1,001	61,497	1,447	76,394	2,582	139,414	2,852	128,788

PUMPING MACHINERY

South Africa is a good market for water-pumping equipment of all kinds The rainfall is heavy but seasonal, so that there is regular need for extensive movement of water by pumping Practically all the big mines are wet and require most elaborate dewatering systems On the Rand mines, for example, millions of gallons of water are brought to the surface daily only to be pumped back in again after clarification to supply the necessary moisture to the rock drills

The British branch of an American company has installed most of the pumps on the important municipal water schemes in South Africa The largest for Johannesburg calls for the pumping of 20,000,000 gallons per day, 45 miles against a head of 1,000 feet A Swiss concern has a fair share of South Africa's trade in pumps United States manufacturers supply a large quantity of working heads and other accessories and in general cater to the smaller requirements down to the farm types

Water-pumping equipment is one type of machinery for which South Africa offers sufficient demand to warrant the expense of specialized sales attention There are many unusual pumping problems constantly arising, with opportunities for new and high-efficiency equipment.

IMPORTS OF PUMPS AND ACCESSORIES INTO THE UNION OF SOUTH AFRICA

Country	1926	1927	1928	1929
United Kingdom	£69, 092	£77, 164	£84, 191	£87, 836
United States	43, 741	55, 225	52, 876	50, 656
Switzerland	11, 506	12, 126	11, 169	13, 290
Germany	3, 367	4, 524	7, 533	6, 486
Canada	636	1, 568	1, 453	1, 068
Other	4, 196	1, 620	1, 548	3, 467
Total	132, 538	152, 227	158, 770	162, 803

WOOL PRESSES

The demand in South Africa for wool presses is for the hand-operated type capable of reducing the ordinary 6-foot pack to about half its original dimensions

IMPORTS OF WOOL PRESSES INTO THE UNION OF SOUTH AFRICA

Country	1926	1927	1928	1929
United Kingdom	£4, 666	£2, 440	£1, 418	£471
New Zealand	750	425	1, 675	2, 259
Germany	275	618	1, 366	2, 867
Australia	534	584	772	982
United States	142	100	218	416
Total	6, 367	4, 167	5, 449	6, 697

ROAD ROLLERS

Road rollers of British manufacture are all steam The Swedish product, operated by an oil engine, has met with considerable favor. The demand, however, is not great

IMPORTS OF STEAM AND MOTOR ROAD ROLLERS INTO THE UNION OF SOUTH AFRICA

Country	1926		1927		1928		1929	
	No	Value	No	Value	No	Value	No	Value
United Kingdom	14	£9, 524	7	£7, 607	9	£6, 667	28	£13, 927
Germany	1	650	--------	44	3	1, 975	3	1, 290
Sweden	--------	64	--------	25	3	1, 752	8	3, 429
United States	--------	814	--------	----------	1	62	--------	591
Total	15	11, 052	7	7, 676	16	10, 456	43	19, 246

TEXTILE MACHINERY

South Africa's textile industry is in its infancy, and American machinery will undoubtedly find a place as the industry grows The principal plant now in operation is wholly equipped with American machinery and is turning out hosiery, bathing suits, and knitted outerwear in competition with imported products

IMPORTS OF WEAVING, KNITTING, AND OTHER TEXTILE MACHINERY INTO THE UNION OF SOUTH AFRICA

Country	1926	1927	1928	1929
United Kingdom	£1,044	£572	£1,814	£1,832
United States	18	117	526	2,816
Germany	362	1	176	572
Other	400	103	374	174
Total	1,824	793	2,890	5,394

SAWMILL AND WOODWORKING MACHINERY

Users of woodworking machinery in South Africa are confined to the furniture factories, the mills, and the joinery plants attached to lumber yards There is practically no production of softwood lumber, and the hardwood timber resources of Rhodesia and Portuguese East Africa are as yet little developed

In the furniture factories the machinery is the simplest It consists in some cases only of a circular saw for roughing out In most of the factories, however, there are planers, sanders, and band saws The practice in woodworking in South Africa is to allow one workman to make a complete article from the rough lumber As factories increase in size there is simply a multiplication of small machinery units rather than the adoption of higher-capacity equipment with men specializing on particular operations

IMPORTS OF SAWING MACHINERY INTO THE UNION OF SOUTH AFRICA

Country	1926	1927	1928	1929
United Kingdom	£4,759	£5,968	£7,102	£5,896
United States	1,137	1,365	1,303	940
Germany	1,280	746	1,243	612
Other	1,053	1,376	361	729
Total	8,229	9,455	10,009	8,177

English manufacturers predominate in supplying machinery for the South African furniture industry The production foremen are all English and favor British equipment Price considerations are against American machinery and in favor of British and continental manufactures British woodworking machinery in use is heavier in weight, which accounts for its acceptance because of greater durability. Germany has figured prominently in the woodworking-machinery trade of South Africa, chiefly because a leading Johannesburg machinery house of German origin has specialized in this class of equipment. The most improved American types of woodworking machinery are generally regarded as too complicated and difficult of operation for the class of workman available here The principal machines being used are in joinery shops for sash and door manufacture, the dressing of lumber, and box making

Better service and supply of spare parts would add impetus to the American participation in this trade

IMPORTS OF WOODWORKING MACHINERY INTO THE UNION OF SOUTH AFRICA

Country	1926	1927	1928	1929
United Kingdom	£25,504	£23 989	£29,730	£32,136
Germany	7,999	4,748	5,485	7,787
United States	4,985	1,425	2,890	2,528
France	---------	4,757	774	343
Other	521	2,043	3,472	2,504
Total	39,011	35,962	40,351	45,298

CLOTHING AND BAG MANUFACTURE

The production of work clothing and all the cheaper grades of shirts and outerclothing for the native trade is carried on throughout South Africa mostly in small factories Batteries of electrically operated sewing machines are employed wherever the size of the establishment warrants There is no mass production or tendency to adopt new time-saving or labor-saving machinery One company has the major portion of the business due to its long-established position and service facilities The Germans are supplying the cheaper grade of sewing machines used principally by the Indian workshops in Natal and even by native operators in numerous small workshops turning out cheap khaki shirts and trousers for their own trade

There is considerable manufacture in South Africa of gunny bags for the sugar and maize industries and of tarpaulins for the railways and to cover grain and other commodities stored in the open

IMPORTS OF INDUSTRIAL SEWING MACHINERY INTO THE UNION OF SOUTH AFRICA

Country	1926		1927		1928	
	Number	Value	Number	Value	Number	Value
United Kingdom	1,286	£17,662	733	£12,006	1 519	£20,143
United States	208	6,710	162	4,878	374	12,656
Germany	31	801	65	1,834	134	2,486
Other	15	355	28	246	7	286
Total	1,540	25,558	988	18,964	2,034	35,571

STEAM AND GAS ENGINES

Vertical high-speed steam engines now in use in South Africa are practically all manufactured by a British firm This same company furnishes much of the steam-turbine equipment for the larger power plants and major pumping operations The American participation in this line is mainly in small vertical high-speed units for refrigeration plants

Two British companies furnish the bulk of the gas-engine equipment used in South Africa The fuel employed is either coal, charcoal, or wood The presence throughout Rhodesia and many parts of the Union of scrub timber suitable only for fuel makes gas-engine power both cheap and satisfactory for isolated mines, power plants, etc Considerable pumping on the large farms is done by gas-engine power using charcoal

Imports of Steam and Gas Engines into the Union of South Africa

Country	1926		1927		1928		1929	
	Number	Value	Number	Value	Number	Value	Number	Value
United Kingdom	252	£48,552	361	£82,207	294	£75,549	288	£45,675
United States	37	1,073	87	2,714	151	3,830	104	2,809
Germany	1	375	1	338	5	1,203	1	143
Other	5	395	7	1,893	5	983	13	354
Total	295	50,395	456	87,152	455	81,565	406	48,981

STONE CRUSHERS

The American share of the stone-crusher sales in South Africa is mainly in the large units The great gyratory crushers for the first stage of ore breaking in the mines are all American British manufacturers are supplying the smaller-size equipment for quarries turning out crushed rock for road making There is a widespread demand for a small stone-crushing unit with self-contained power plant for use in small mining operations, both to reduce ore and to prepare rock for concrete making German and Swedish manufacturers are supplying oil-engine crushers that are meeting with considerable favor

Imports of Stone Crushers and Parts into the Union of South Africa

Country	1926	1927	1928	1929
United Kingdom	£36,375	£24,650	£21,438	£17,980
United States	10,290	5,389	7,712	8,646
Sweden	230	----------	1,800	1,469
Germany	685	1,862	416	547
Other	209	19	62	213
Total	47,789	31,920	31,428	28,855

SUGAR MACHINERY

The sugar industry of South Africa is located in Natal and Zululand and has an output of 300,000 tons of sugar a year, obtained from the grinding of about 3,000,000 tons of cane There are 26 mills and 3 refineries in operation The mills generally work between the months of May and December The machinery is predominantly British, a Glasgow firm being responsible for most of the recently constructed plants American filters are generally installed and the pumps of United States manufacture are standard for conveying the juice before clarification to the filter presses One American company has furnished most of the equipment for unloading and feeding cane into the grinders

The produce of the mills is known as "cargo" sugar, in which form it is consumed by the natives, particularly in the mine compounds Refined sugar for consumption by Europeans is made at one plant by the Suchar process and at another by the double carbonation process. A modern type refinery completed in 1927 at Durban has a capacity of 550 tons per day using the bone-char process All classes of refined sugars are produced

The sugar industry of South Africa is feeling the effect of the world overproduction but is strongly protected against foreign sugar through dumping duties, and is also aided by an import bounty on shipments to the United Kingdom The latter has an important bearing on keeping the purchase of machinery confined to British manufacturers

IMPORTS OF SUGAR-MILLING MACHINERY INTO THE UNION OF SOUTH AFRICA

Country	1926	1927	1928	1929
United Kingdom	£196, 191	£95, 575	£115, 474	£93, 374
United States	20, 554	16, 040	4, 641	3, 090
Germany	71	400	799	668
Other	1, 741	4, 231	147	858
Total	218, 557	116, 246	121, 061	97, 990

WELL-DRILLING EQUIPMENT

American water-well drilling equipment has prevailed in South Africa on account of its outstanding serviceability and the absence of competing British products Well-drilling conditions in South Africa are similar to those in vast areas of the western United States, and the same type of equipment is in demand Hundreds of wells are bored annually for the requirements of the sheep and cattle farming regions American drills are beginning to be copied by local engineering shops, particularly for supply to the Government irrigation department

WATER-WELL DRILLING MACHINERY IMPORTS INTO THE UNION OF SOUTH AFRICA

Country	1926	1927	1928	1929
United States	£10, 629	£26, 399	£79, 366	£67, 163
United Kingdom	3, 933	6, 075	8, 728	5, 535
Other	416	255	59	795
Total	14, 978	32, 729	88, 153	73, 493

MISCELLANEOUS INDUSTRIAL MACHINERY

The heading "Industrial machinery not elsewhere specified" covers considerable refrigeration machinery American refrigerating equipment is in high favor, especially for creameries, cooling of fruit for export, meat and produce storage, ice-cream manufacture, etc An exceedingly important development in the near future will be air conditioning on the Rand mines to improve the working conditions at increasing depths

The steady increase in imports from practically all sources in the miscellaneous machinery group shows the growing diversity of South Africa's manufacturing industries Rapid productive machinery is coming into greater use, and there is a gradual awakening to the possibilities from a greater employment of American machinery and mass-production methods The two American automobile assembly plants which have been erected employ white labor exclusively and are valuable missionaries for American industrial methods and equipment

IMPORTS OF INDUSTRIAL MACHINERY NOT ELSEWHERE SPECIFIED INTO THE UNION OF SOUTH AFRICA

Country	1926	1927	1928	1929
United Kingdom	£126,634	£238,610	£347,797	£336,614
United States	53,608	47,167	91,523	83,712
Germany	22,771	48,058	48,046	51,877
Sweden	8,535	9,348	16,554	18,836
Switzerland	2,272	1,107	6,115	2,646
France	2,001	2,441	2,501	3,916
Other	2,478	7,521	8,444	15,724
Total	218,399	354,252	520,980	513,325

IMPORT TRADE OF ALL BRITISH SOUTH AFRICA

Up to the present point we have discussed mainly the industrial machinery trade of the Union of South Africa, which accounts for most of the imports into British South Africa The following tables, however, show United States exports of industrial machinery to all of British South Africa, based upon American statistics, and imports of this class of machinery from all sources based upon South African statistics The latter table is especially interesting as showing some of the transshipment trade destined for Northern and Southern Rhodesia, which passes through the Union, Beira (Portuguese East Africa), and other ports

UNITED STATES EXPORTS OF INDUSTRIAL MACHINERY TO BRITISH SOUTH AFRICA

[Based on United States customs statistics]

Class of machinery	1928	1929
Power-generating machinery		
Steam engines [1]	$56,406	$25,897
Internal-combustion engines [2]	16,447	18,557
Water wheels and water turbines	420	------------
Total	73,273	44,454
Construction and conveying machinery		
Construction machinery	156,618	166,100
Conveying machinery	86,766	104,073
Total	243,384	270,173
Mining, well, and pumping machinery		
Mining and quarrying machinery	1,299,752	1,358,768
Well and oil refinery	155,518	239,971
Pumping, power [3]	114,077	108,655
Total	1,569,347	1,707,394
Metal working machinery	317,604	349,900
Textile, sewing, and shoe machinery		
Textile	8,687	14,914
Sewing, industrial	19,407	23,222
Shoe, except sewing	9,333	9,290
Total	37,427	47,426
Other industrial machinery	1,039,681	1,469,915
Grand total	3,280,716	3,889,262

[1] Excludes locomotives and parts

[2] Excludes engines not over 10 horsepower

[3] Excludes windmill pumps

CERTAIN CLASSES OF INDUSTRIAL MACHINERY IMPORTED INTO BRITISH SOUTH AFRICA DURING 1929 [1]

Class	Union of South Africa	The Rhodesia		Southwest Africa	Total
		Via Union ports	Via Beira, etc , and overland		
Engines	£235, 711	£3, 504	£56, 902	£12, 535	£308, 652
Mining machinery	975, 652	48, 953	150, 648	54, 622	1, 229, 875
Industrial machinery not elsewhere specified	941, 300	4, 864	54, 708	8, 879	1, 009, 751
Total	2, 152, 663	57, 321	262, 258	76, 036	2, 548, 278

[1] This summary, taken from official South African returns, evidently excludes a number of types of industrial machinery but is of particular interest in showing some of the transshipment trade with the Rhodesias

MERCHANDISING METHODS

Several methods of merchandising machinery in South Africa are being successfully employed In establishing a new line there is always the problem of whether the possible volume of sales will warrant the effort necessary Factories are inclined to be either small and widely scattered, as for example the clothing, confectionery, and foodstuff plants, or they are concentrated in the hands of a few concerns in favorable localities, as in the case of the shoe and furniture industries and the automobile assembly plants If the possibilities for volume of sales of a line of machinery are not present, it is difficult to obtain any sort of representation which will do more than respond to local inquiries that may come along

One of the most generally employed methods of merchandising is to hand over exclusive distribution rights to a local firm of machinery importers, which purchases the goods outright for resale These firms, or engineering houses as they are called in South Africa, are in a position to undertake the work of installation as well as servicing the equipment and to carry necessary stocks of spare parts Supplementing this arrangement, it is the practice of many manufacturers to send out American sales engineers or specialists, who prepare the way for local salesmen by developing prospects, giving expert advice and assistance on service, and otherwise doing the missionary work so essential in a new country

The actual selection of a machinery distributor in South Africa is best done by approaching qualified firms direct, one at a time, outlining the proposition in detail, with terms, discounts, etc , and supplying descriptive literature A list of leading South African machinery importers and dealers, giving full particulars as to the organizations, references, and lines handled by each, may be obtained from the industrial machinery division of the Bureau of Foreign and Domestic Commerce at Washington or through any of the bureau's district or cooperative offices The American trade commissioner's office at Johannesburg is able to assist by narrowing the choice to a few of the best qualified houses, including those that may be seeking a given line of machinery An important consideration is the attitude of the local firm toward American products There are several high-class machinery importing companies owned or managed by Americans residing in South Africa These are naturally to be preferred if the line comes within the general scope of their activity

Many excellent British firms are now distributing American machinery and are in a position to take on additional lines While their general attitude is open minded and liberal, there are a few ultraconservative firms that can not be expected to represent American products which compete with established British products The German firms doing business in South Africa with one or two exceptions are specializing in Continental machinery

A personal survey in South Africa by American machinery export executives is, of course, to be preferred to any other method for selecting a representative and investigating the possibilities of the market It has been observed that both machinery dealers and prospective users are very keen to discuss business with visitors who can speak authoritatively about a machinery problem, so that if the field warrants such intensive consideration, a visit by a qualified sales engineer is undoubtedly the best way of entering the market

THE COMMERCIAL EXCHANGE

There is situated in Johannesburg a unique institution known as the Commercial Exchange, the purpose of which is to bring together buyer and seller and to otherwise facilitate the purchase of supplies by the mines, railways, municipalities, Government departments, and other consumers in the Union, Southwest Africa, and Rhodesia Regularly appointed buyers for the different groups post their requirements daily on the exchange boards, where they are available to all exchange members desiring to quote

In general, the transactions of the exchange cover-supplies carried in stock by local importers Orders for deferred delivery, however, are frequent, especially on machinery, so that oversea suppliers participate in business transacted on the Commercial Exchange through their local representatives Only approved firms and buyers can post their requirements on the Exchange, and careful investigation is made into the character and standing of members quoting The result is keen, wide-open competition, except for specialties, which although posted go to firms handling the particular line

The Commercial Exchange has been criticized from the point of view of the supplier as tending to promote price cutting and the whittling of profits to the vanishing point Its success, however, from the buyers' standpoint and the commercial community generally has been marked There has been a steady increase in the volume of business transacted through the Commercial Exchange since its inception in 1905 During 1928 it reached a total volume of £17,852,931, as compared with £17,569,544 in 1927 and £16,995,609 the previous year The following table shows machinery and tools (other than electrical) purchased through the Commercial Exchange for mining requirements alone, by Provinces of the Union, during the year 1928

MACHINERY AND TOOLS (OTHER THAN ELECTRICAL) PURCHASED FOR MINING REQUIREMENTS, BY PROVINCES OF THE UNION OF SOUTH AFRICA, FROM THE COMMERCIAL EXCHANGE IN 1928

Classification	Transvaal						
	Gold mines (large)			Diamond mines	Coal mines	Other mines	Total Transvaal mines
	Witwatersrand	Outside Witwatersrand	Total				
Water purifiers	--------	--------	--------	--------	£220	--------	£220
Boiler plant, other than that of locomotives, traction engines, or steam wagons	£26, 226	£568	£26, 794	--------	6, 775	£7, 219	40, 788
Headgear	6, 305	14, 268	20, 573	--------	--------	778	21, 351
Steam engines							
For winding	100, 959	--------	100, 959	--------	300	641	101, 900
For pumping, including pumps if directly driven	--------	--------	--------	--------	523	--------	523
For compressors, including compressors	17, 126	150	17, 276	--------	153	1, 933	19, 362
For generating electricity	--------	--------	--------	--------	97	--------	97
For other purposes	105	--------	105	--------	165	5	275
Pumps							
Air-driven	7, 828	134	7, 962	--------	743	92	8, 797
Driven indirectly by steam	330	251	581	--------	153	748	1, 482
Driven indirectly by electric motors	17, 462	1, 905	19, 367	--------	1, 700	716	21, 783
Driven indirectly by gas or oil engines	--------	--------	--------	--------	--------	565	565
Steam locomotives	14, 173	--------	14, 173	--------	14 591	549	29, 313
Traction engines	1, 727	--------	1, 727	--------	--------	--------	1, 727
Steam lorries	1, 450	--------	1, 450	--------	--------	--------	1, 450
Motor wagons							
Electric	--------	--------	--------	--------	--------	616	616
Oil	2, 593	--------	2, 593	--------	--------	245	2, 838
Gas or oil engines	--------	--------	--------	--------	--------	501	501
Mechanical lifts and elevators other than belt conveyors and elevators	15, 261	125	15, 386	--------	2, 292	273	17, 951
Belt conveyors and elevators	6, 039	--------	6, 039	--------	73, 828	308	80, 175
Other mechanical haulage	12, 324	3, 446	15, 770	--------	2, 301	--------	18, 071
Reduction plant, excluding engines and consumable stores, such as shoes and dies, screenings, etc	56, 855	4, 056	60, 911	--------	--------	7, 044	67, 955
Washing plant	1, 438	--------	1, 438	£1, 520	85	164	3, 207
Treatment plant, including furnaces	5, 210	572	5, 782	--------	--------	911	6, 693
Workshops plant, excluding engines and motors	34, 700	6, 576	41, 276	--------	1, 166	2, 327	44, 769
Mine-ventilation plant, excluding engines, compressors, and motors	6, 975	92	7, 067	--------	824	179	8, 070
Diamond drills (property of company)	100	--------	100	--------	552	--------	652
Miscellaneous machinery not specified above	67, 525	9, 569	77, 094	239	5, 521	22, 633	105, 487
Total value	402, 711	41, 712	444, 423	1, 759	111, 989	48, 447	606, 618

MACHINERY AND TOOLS (OTHER THAN ELECTRICAL) PURCHASED FOR MINING REQUIREMENTS, BY PROVINCES OF THE UNION OF SOUTH AFRICA, FROM THE COMMERÇIAL EXCHANGE IN 1928—Continued

Classification	Cape of Good Hope		Orange Free State		Natal		Union of South Africa total
	Diamond mines	Other mines	Diamond mines	Coal mines	Coal mines	Other mines	
Water purifiers	-----	-----	-----	-----	-----	-----	£220
Boiler plant, other than that of locomotives, traction engines, or steam wagons	£1,794	-----	£306	-----	£5,686	-----	48,574
Headgear	-----	-----	485	-----	235	-----	22,071
Steam engines							
For winding	-----	-----	-----	-----	11,066	-----	112,966
For pumping, including pumps if directly driven	25	-----	-----	-----	137	-----	685
For compressors, including compressors	250	-----	7,581	-----	14,413	-----	41,606
For generating electricity	-----	-----	-----	-----	-----	-----	97
For other purposes	284	-----	-----	-----	201	-----	760
Pumps							
Air driven	-----	-----	-----	£40	205	-----	9,042
Driven indirectly by steam	-----	-----	96	65	418	-----	2,061
Driven indirectly by electric motors	1,334	-----	926	195	1,038	-----	25,276
Driven indirectly by gas or oil engine	-----	-----	-----	-----	-----	-----	565
Steam locomotives	-----	-----	-----	-----	-----	-----	29,313
Traction engines	-----	-----	1,576	-----	-----	-----	3,303
Steam lorries	-----	-----	-----	-----	-----	-----	1,450
Motor wagons							
Electric	-----	-----	-----	-----	-----	-----	616
Oil	-----	£2,200	-----	-----	-----	-----	5,038
Gas or oil engines	-----	2,360	-----	-----	-----	-----	2,861
Mechanical lifts and elevators other than belt conveyors and elevators	163	-----	288	-----	106	-----	18,508
Belt conveyors and elevators	-----	-----	100	1,248	824	-----	82,347
Other mechanical haulage	4,731	-----	-----	81	791	-----	23,674
Reduction plant, excluding engines and consumable stores, such as shoes and dies, screenings, etc	-----	33	19,193	342	-----	-----	87,523
Washing plant	2,099	-----	174	-----	10,296	-----	15,776
Treatment plant, including furnaces	-----	1,553	-----	20	-----	-----	8,266
Workshops plant, excluding engines and motors	1,014	84	2,345	484	258	-----	48,954
Mine ventilation plant, excluding engines, compressors, and motors	-----	-----	-----	-----	163	-----	8,233
Diamond drills (property of company)	-----	899	-----	-----	-----	-----	1,551
Miscellaneous machinery not specified above	8,199	3,081	2,144	206	4,929	173	124,219
Total value	19,893	10,210	35,214	2,681	50,766	173	725,555

It is recommended that American machinery manufacturers seeking representation in South Africa make certain that agency prospects are members of the Johannesburg Commercial Exchange Such membership is not only an indication of their reliability and standing, but it is an assurance that a particular product is being brought to the attention of mine operators and other buyers Opportunities for the sale of specialty lines of machinery are thus not overlooked

The Commercial Exchange has carried on steady effort for greater purchase locally, through South African representatives of oversea suppliers, of the requirements of the South African railways, Government departments, municipalities, and other users of industrial machinery Many of these purchases were formerly made by the High Commissioner for South Africa in London, and were often placed with British manufacturers without ever being brought to the attention of firms in other countries. The present tendency, therefore, emphasizes the importance of being adequately represented in South Africa in order to take advantage of the increasing amount of Government and municipal business which is being placed locally

CONCLUSION

The problem of selling American machinery in South Africa can be reduced to two or three factors. The line must, in the first place, be one for which there is a demand in this territory. If it is mining machinery, it must be of a type usable in the kind of mining operations being carried on in South Africa; if ordinary industrial equipment, there must be scope for its use in industry. Pumping machinery might be taken as a good example of a line for which there are widespread possibilities in this territory.

Secondly, American manufacturers can expect to sell in this market only machinery that has some unique features either in respect to speed or economy of output, labor elimination, or some other distinct advantage over the product of conservative makers who follow standardized and time-honored methods and design. The generally superior design of American machinery is a selling asset of great importance and in South Africa often effects the entrée into an otherwise closed field. On practically all standard mechanical lines the United States producer can not hope to compete on a price basis with English or Continental manufacturers, unless the equipment is something which American factories are turning out on a mass-production basis.

American machinery exporters can score in this market through intensive sales effort, by sending out their own sales engineers, where conditions justify, to organize a local sales force and provide the inspiration and leadership necessary to introduce a new and untried article. Factory backing of the local distributor by willingness to send out a newly designed machine on trial is an excellent means of arousing the cooperation of the local firm, which does not then have to take all the chances of the line being a success.

There is no need for consigning American machinery stocks to this market. The only safe and profitable course is to follow the clean-cut method of outright sale and purchase. Terms can be varied in accordance with financial and credit conditions without any improper shifting to the shoulders of the American manufacturer of the capital burden which belongs with the importing merchants. The practice of foreign machinery manufacturers in consigning their products to South Africa undoubtedly contributes to a greater volume of export shipments, but the results over a period of years leave open the question whether sales made on this basis have not been offset by losses during times of economic depression.

South Africa is not a big market for American machinery. In fact, it is restricted in many ways by factors beyond an exporter's control. But with careful selection of distributors, adequate backing of a progressive export policy, and energetic and intensive sales effort, using factory-trained technical experts where potential volume exists, there is no reason why a satisfactory share of the business may not be obtained.

Considerable information in the form of trade lists covering South Africa is available upon application to the commercial intelligence division of the Bureau of Foreign and Domestic Commerce, Washington, D. C. Included are lists of the following: Engineering firm members of Witwatersrand Commercial Exchange, and buyers for mining, municipal, railway, and industrial enterprises (names of firms for which they purchase also being given).